SL-II MC-411/1
Time: 00112 EDT 150105112 GMT
5/30/73

PAO Skylab Control at 5 hours 12 minutes and 23 seconds Greenwich mean time. The space station has now reached an acquisition of signal over Guam. And we're receiving data there already from telemetry. That data indicates still that the Science Pilot, Dr. Joseph Kerwin, is in a sound state of sleep in the orbital workshop area. This is the first night that the Skylab crew has slept in the orbital workshop sleep compartments. First time during the 28 day mission. We're receiving data that shows him sound asleep in the deepest stage of sleep, stage 4. And we expect that to fluctuate during the evening. That's normally the procedure. You sleep very deeply and have lighter stages of sleep, and some rapid eye movement that indicates possibly dreaming. And the temperatures in that area on the sleep monitor for experiment M133, indicate temperatures from 79 to 86 degrees in various temperature transducers in that neighborhood. So it's been a rather warm place to sleep, but not terribly uncomfortable. And as you can see, he is sound asleep there. The first time the temperatures in the workshop are hovering around the 82 to 83 degree mark, coming down slowly. The spacecraft is on its 224th revolution as it passes over Guam on a descending node, traveling towards the southeast, and we do not expect to hear any more commentary from the spacecraft. We have not for quite some time. This is Skylab Control and we will stay alive for air to ground for the next 8 minutes and 30 seconds. Skylab Control at 14 minutes after the hour.

PAO Skylab Control at 14 minutes and 33 seconds after 05:00 GMT. Because the crew members appear at this time to be asleep, the Science Pilot is the only one wearing a monitor that would give us indications, because there is sound sleep indicated there, we will shut down the line. If anything should happen, we'll come back up for an announcement, and there will be a next announcement on the hour at 1:00 a.m. This is Skylab Control at 14 minutes and 59 seconds after the hour.

END OF TAPE

SL-II MC-272/1
Time: 01:00 CDT, 150:06:00 GMT
5/30/73

PAO This is Skylab Control at 6 hours and 2 seconds Greenwich mean time. At the present time the spacecraft is on ascending node beginning it's 225th revolution about the Earth, traveling north over the Brasilian coast and in range of the Vanguard tracking station. Those temperatures have again begun to cose down during the nighttime period when there is less activity in the spacecraft. The highest temperature now reading anywhere in the spacecraft is 86.6 degrees. The lowest level in the orbital workshop area of the spacecraft is 76.2 degrees. And the median temperatures indicated are about 82 degrees. In the sleeping compartment where Science Pilot Joseph Kerwin is asleep, there are readings from 79 to 86 degrees. At the present time the sleep state indicated there is stage three of sleep which is a moderate to deep sleep and they have been fluctuating regularly during the passes we've had so far today. This monitoring device used in experiment M-133 includes an electroencephalogram which is a brain wave measuring device, and an electrooculograph which measures eye movements. Rapid eye movements are associated with states of dreaming. So at the present time everything is moving smoothly, both coolant loops functioning properly and are bringing those temperature down, although at a very slow rate now by fractions of degrees every hour. This is Skylab Control at 1 minute and 29 seconds after the hour.

END OF TAPE

SL-II MC-273/1
Time: 02:00 CDT, 150:07:00 GMT
5/30/73

PAO This is Skylab Control at 7 hours Greenwich mean time. At the present time Skylab crew is still asleep in the orbital workshop. We've heard nothing from them. The M-133 sleep monitor is not - has not given us any valid data at the last station so there's no neccessary problem there, but the information we were getting was not indicating any sleep state at all and that does happen from time to time because of variations in telemetry and also because of changes in the position of the equipment that's worn on the head of Dr. Joseph Kerwin. Temperatures have continued to decline at a very very slow rate in the orbital workshop during the overnight period. Temperature decline indicated is about 1 degree every 4 hours on most of those sensors in the - atmospheric sensors in the orbital workshop. The lowest temperature now being read up in the mission control display of orbital workshop atmospheric temperature transducers is 75.8 degrees. The highest temperature listed on the - on this display is 86.1 degrees, and in general the mean temperature is indicated at about 82 degrees on the atmospheric sensors display at mission control. The indication is that with both coolant loops operating that temperature has dropped very slightly but almost not noticeable anymore. Most of the dropping is at a slower rate than last night when it was dropping by fractions of degrees. There have been no new problems aboard the spacecraft. Everything is operating properly and this is now in the 225th revolution as we are coming within 1 minute of acquisition of signal at the Honeysuckle tracking station in Australia. This is Skylab Control at 1 minute and 46 seconds after the hour.

END OF TAPE

SL-II MC274/1
Time: 05:00 a.m. CDT, 156:10:00 GMT
5/30/73

PAO This is Skylab Control at 10 hours and 28 seconds Greenwich mean time. At the present time the spacecraft is traveling a descending node of the 227th revolution. It's now passing out into the Indian Ocean over the - just passing the tip of India. There have been no major problems aboard the spacecraft. Systems all seem to be functioning properly. Temperatures are not coming down very quickly although they have reduced again somewhat during the night, a fraction of a degree an hour has been the rate over the overnight period. Temperatures now approximately 81 on most of those sensors in the orbital workshop atmospheric gas temperature display here in Mission Control. No indication as to whether those temperatures are going to come down much further but they have come down a matter of about 2 or 3 degrees on the overnight period. At the present time the system for computer telemetry here on ground is giving mission controllers some problem. They're having trouble recording data to be put into the files. Every so often all of the information that is recorded on tape here in the computer center must be taken off and put on tape and stored and they have had some backlog there and as a result of that have had to hold information at the tracking stations rather than bringing it in here to the computers and they're presently trying to solve that problem. It doesn't present any immediate emergency and we don't lose the data but it is causing something of a backlog right now, and that's now being under study here in the computer center. This is Skylab Control at 2 minutes and 10 seconds after the hour.

END OF TAPE

SL-II MC275/1
Time: 05:31 a.m. CDT, 6:10:51 GET
5/30/73

PAO Skylab Control at 10 hours 51 minutes and 38 seconds Greenwich mean time. At the present time, we're 25 seconds from acquisition of signal at the Corpus Christi, Texas, Tracking Station. We're beginning a stateside pass that will last an extended period of time, about 15 minutes all together. This stateside pass is expected to include a wakeup call from the spacecraft communicator, and that should take place shortly after 6 o'clock this morning, possibly at either the Mila or Bermuda stations, which are both on this single ground track. We have acquisition of signal now, and we will stay alert for a call from the crew.

END OF TAPE

SL-II MC-276/1
Time: 06:01 a.m. CDT, 6:11:01 GET
5/30/73

CC Good morning, Skylab. This is Houston. We're AOS over Bermuda for about the next 6 minutes.

SC Good morning. And we're with you.

SC Hey, Houston, Skylab.

CC Go Skylab.

SC This is ah - data point for you last night. All three of us did sleep in the sleep compartment rather than any place else. And it's also - it should cool it down. And ah - It could be a little cooler, but I think everybody got a feasible night's sleep down here.

CC Roger. Copy.

SC Houston, SPT.

CC Go, SPT.

SC I have a comment for you on M133, you ready?

CC Go.

SC Okay. I just got notice this morning that - testing the electrodes after the sleep period. But all of them indicated poor contact. They were all okay last night. However, all of the electrodes were (garble) dryer than they'd been packed. They [illegible]ually had dried out. So, it looks as if [illegible]ay have dried out more during the night. I'd like the guys down below to check their real time data and see whether they got solid data through the night. If they didn't whether they can think of a fix to get additional moisture into the electrodes.

CC Rog. Joe. No we indicated stage zero throughout the night, which indicated no data. That was about 1 hour at - we got 1 data for good for 1 hour and then it went to stage zero.

SC Okay. Well, I had good contact when I went to sleep. And nothing this morning. So, I believe the electrodes are drying out on us.

CC Rog. We copy. We'll look into it.

CC Skylab, Houston. We're 1 minute from LOS. We'll have you again at Madrid in 11:11, 1111.

SC (Inaudible).

PAO Skylab Control, at 11 hours 8 minutes and 8 seconds. We're presently out of range of the voice communications with the astronauts in Skylab. They are now up and awake. We do have tracking data, however for our New Foundland Station. But that's only ATM data. It doesn't include a voice track. We expect to get acquisition of signal again in a little over 2-1/2 minutes from Madrid. That pass lasts 8 minutes and 3 seconds. And after that we'll be out of range of voice communications for an extended period of time. Today will be a rather light day in terms of medical experiments. All three crewmen will have blood

samples drawn this morning and stored for later analysis on the ground. These samples are spun in a centrifuge and then stored in a freezer. During the past night the Science Pilot, Joseph Kerwin, was wearing M133, the sleep monitoring night cap. He indicated that he was having some problem with the electrodes drying out in that sleep cap. And after about an hour of good data on Dr. Kerwin's state of sleep, the readings became invalid. The biomedical persons in Mission Control indicated earlier that they would ask about reasons for the cessation of valid data. But Dr. Kerwin voluntered that information as he first spoke to the ground. M133 is scheduled to be worn by Dr. Kerwin again tonight, although something will have to be done to activate those electrodes so they will give proper readings. Today the human vestibular function experiment, M131, will be conducted twice. First, with Paul Weitz as the subject and Dr. Kerwin as an observer. And later this afternood Dr. Kerwin will sit in the rotating chair and Paul Weitz will observe. The rotating litter chair used in M131, moves very slowly in a circle, taking from 2 seconds to 1 minute to make a revolution. The test will help doctors understand more about motion sickness in a weightless environment, as the speed of the spinning chair increases. And also, will tell something about man's ability to detect movement at very, very low speeds. Both Commander Pete Conrad, and Science Pilot Dr. Joe Kerwin, are scheduled to operate the Skylab's solar telescope today, again doing many of the experiments similar to those done yesterday. Dr. Kerwin will also operate an aerosol analyser to measure particles in the spacecraft's atmosphere that might affect the health of crew members. This investigation, experiment number T003 may lead to improvement in future spacescraft materials, air circulation, and also housekeeping procedures. Paul Weitz will also set up and operate the stellar ultravilot astronomy experiment in the scientific airlock. This is on the opposite side of the OWS from the airlock used to deploy the thermal parasol. The purpose of that is to aid in the understanding the physics of star formation, collective structure in interstellar medium. We will have acquisition of signal in not - approximately now in Madrid.

END OF TAPE

SL-II MC-277/1
Time: 06:11 a.m. CDT; 06:11:11 GET
5/30/73

CC Skylab, Houston. We're AOS over Madrid for the next 7 minutes.

CC Skylab, Houston. We're 1 minute until LOS. We'll see you again over Carnarvon at 11:46.

SC Hey, Griff, we didn't get our flight plan for the SPT last night. We got 18 feet of other stuff, but the SPT doesn't have a flight plan - summary flight plan.

CC That's beautiful. We'll look into it. Maybe we're going to let him loaf today. I understand it was not the summary he did - he didn't get the summary, right?

SC He did not get the summary flight plan last night.

CC Roger; copy.

CC That was just a test to see if you're still reading it.

SC Yeah.

PAO This is Skylab Control at 11 hours 19 minutes and 50 seconds Greenwich mean time. We've just lost signal with the Skylab spacecraft. The spacecraft is now traveling over Europe, headed on a descending node of the 228th revolution. They woke up promptly at 6 o'clock this morning. The first Earth resources experiment pass is planned for later in the day, in addition to the activities listed earlier. This will require an attitude change from that which points the solar telescope and the ATM solar panels at the Sun to an attitude in which the space station is kept in the same relation to the Earth, so that Earth-observing cameras and sensors can remain fixed on the surface below. Twenty-five separate sites have been identified for this first Earth resources pass, which follows groundtrack number 20, beginning at the coast of Oregon on the Pacific Coast; traveling across parts of Nevada, Utah, Arizona, New Mexico, Texas, the Gulf of Mexico, Central America, Columbia; and ending just into Brazil, where the Sun angle is too low for good quality photography. We have looked at the weather reports for today, and they appear to be excellent for photography in much of that area. Less than 3/10th cloud cover, which is considered optimum conditions in most of the southern part of the United States. There is some cloud cover on the Oregon coast, but one of the - at least one of the projects in that area does not require clear - clear skies; so there will be some data from that area even if there remains cloud cover later today. Central America - the cloud conditions are a little bit more severe; it's unlikely that much data will be gathered there - about 8/10ths to 10/10ths in cloud cover, and there are medium cloud cover in the Brazil and Columbia areas. Many of those experiments today on the Earth resources experiments package are intended to check out the sensors that are being used in that equipment. Among the sensors being tested are the microwave radiometer, the scatterometer altimeter, which is S193. And that will be tested over a variety of terrain-types, in both clear and rainy weather, to prepare [illegible]

will aid designers of future remote-sensing satellite instruments. Now that can take place anywhere in the United States, and it will be done on this groundtrack number 20. Another test of instruments on the spacecraft, to compare with data received by aircraft-carrier sensors and those provided by researchers right at the test site on the ground, will be recorded on magnetic tape and on the coast of Oregon. The place of this is on the coast of Oregon; it will be recorded on magnetic tape in the spacecraft. To evaluate the multispectral camera, S190A, and the Earth terrain camera, S190B, in use over the Great Salt Lake Desert in Utah and also at White Sands in New Mexico, we'll also be doing a pass today, and this data will be used in quick-look planning. That's a very short period of time-planning for Skylab number III, the next Skylab mission. We'll also be doing an evaluation of performance of S191, the infrared spectrometer, which will observe the White Sands, New Mexico, test site through the infrared spectrum, which is not visible to the unaided eye. This uses both magnetic tapes and also has a view-finder photograph, and that data will be returned by the crew at the end of the 28-day mission. In addition to that, there are a number of other projects, including agricultural projects. One example of this is the agricultural project in Columbia, South America. This is one of three areas that will be studied during this Skylab mission. The others are Sudan and Africa and Philippines, with a study that's being taken - taking place under the auspices of the United Nations Food and Agricultural Organization. And this will be to study both crop and forest inventories, and also to study insect and disease damage to plant life, using the multispectral photographic equipment. In addition to that, there are a number of studies in the Rio Grande Valley of insect infestation and to map saline soils. So there are twenty-five all together, and this is our first Earth resources pass taking place this afternoon. This is Skylab Control at 11 hours 24 minutes and 18 seconds after the hour.

END OF TAPE

SL-II MCC78/1
Time: 06:45 a.m. CST, 11:45 GMT
5/30/73

PAO [illegible] Skylab Control Houston at 11 hours 45 minutes Greenwich mean time; standing by now for acquisition of Skylab space station over Carnarvon. The crew aboard Skylab awakened on the last stateside pass and presently undergoing their post-sleep activities prior to start of the work day. We'll stand by and monitor the callup to the crew aboard Skylab from CAP COM, Bob Crippen.

CC Skylab Houston we are - have about 30 seconds worth of voice over here at Carnarvon and we'll have you again at Honeysuckle at 11:57, correction, we've got about 5 minutes here. That clock is all fouled up.

SC GARBLE.

CC Rog. We're going to try to correct Joe's problem and give him up a summary flight plan.

SC Yeah, that includes his details too. And you passed the PLT details twice and the CDR details twice. We have checked it no further than just cross-checking the message numbers and the message numbers are the same on those duplicate messages.

CC Rog. I guess we didn't understand about the details while ago for the SPT so we'll have to work on that.

SC That's my fault Crip. I specified summary flight plan.

CC No sweat, Paul.

SC Houston are you there?

CC Rog. Go ahead.

SC Okay I found the SPT's flight plan in detail GARBLE.

CC Roger, understand you do have the SPT's flight plan.

CC Skylab, Houston. That last was a little garbled. Understand you do have the SPT's detail summary.

CC That's affirmative, Crip.

CC Roger. Thank you.

CC Skylab, Houston. We're one minute until LOS. We'll see you again at Honeysuckle at 11:57, 11:57.

SC See you.

PAO Skylab Control, Houston; 11 hours 54 minutes Greenwich mean time. Skylab now under acquisition through Honeysuckle tracking. The crew aboard Skylab now awake. Now undergoing their post-sleep activities prior to the start of the work day. This morning the pilot and science pilot will be involved in the M131 experiment. This the human vestibular function involving the rotating litor chair, which moves very slowly in a circle. Paul Weitz will serve as subject. Dr. Joe Kerwin

SL-II MC278/2
Time: 06:45 a.m. CDT, 6:11:45 GET
5/30/73

as the observer of this. Will be repeated later in the afternoon reversing the status of the two crewmembers.

PAO Continuing with the pass over Honeysuckle now. No callup thus far from CAP COM Bob Crippen to the crew aboard Skylab.

END OF TAPE

SL-II MC-279/1
Time: 06:37 a.m. CDT, 6/11:37 GET
5/30/73

CC Skylab, Houston. We're AOS over Honeysuckle for just about 1 minute.

SC Rog, Houston. The SPT got two sets of details also. And I don't quite understand it because one of them is buried in the middle of the ATM pad. Details that - You might look into that. It seems like when you're sending them all out in any old random order that some time - His details didn't have a header on it. It's just right smack in the middle of the ATM stuff with an end-of-message header but no beginning-of-message header.

CC Roger. Copy, Pete. And we're about 30 seconds still LOS. We'll see you again over Texas at 12:27, 1227.

SC Roger, roger.

PAO That was Pete Conrad describing the teleprinter operation. Apparently, 2 sets of detail Flight Plans or Flight Activities were transmitted for the Science Pilot, Joe Kerwin. We're 11 hours 59 minutes Greenwich mean time; passing out of range now with Honeysuckle. The next station to acquire will be Texas at ah - in approximately 27 minutes from this time. Today's Flight Plan shows 2 of the crew members at the display and control console of the Apollo telescope mount. At 1400 hours Greenwich mean time, the Commander, Pete Conrad, will be in that position. Later in the day, around 1700 Greenwich mean time, Science Pilot, Joe Kerwin, will assume that position. We're 27 minutes away, now from Texas acquisition and this is Skylab Control, Houston.

END OF TAPE

SL-II MC-280/1
Time: 07:04 a.m. CDT, 6:12:04 GET
5/30/73

PAO Skylab Control, Houston; 12 hours 4 minutes Greenwich mean time. This is an announcement to announce that there will be a change of shift news conference with Flight Director Milt Windler. This press conference will start at 7:15 Greenwich - 7:15 central daylight time in the building 1 briefing room. I repeat, 7:15 central daylight time, approximately 10 minutes from now. That will be a change of shift conference with Flight Director Milt Windler, who is going off shift.

END OF TAPE

SL-II MO-181/1
Time: 0712 a.m. CDT, 6112:12 GET
5/30/73

PAO Skylab Control, Houston, at 12 hours 12 minutes Greenwich mean time. This is a repeat of our previous announcement. A change of shift press briefing is scheduled with off-going Flight Director, Milton Windler, This is estimated to start approximately 7:15. Flight Director Windler is presently leaving the Mission Control Center to go to building 1 for the news conference in the small briefing room in building 1.

END OF TAPE

SL-II MC-282/1
Time: 07:36 a.m. CDT, 06:12:36 GET
5/30/73

'LL DEAD AIR

END OF TAPE

SL-2 MC-283/1
Time: 07:47 a.m. CDT, 6/12:47 GMT
5/30/73

CC Skylab, Houston. We're AOS over Madrid for the next 9 minutes.

SC Roger, Houston. Hey, Crip, verify something for us sometime, will you please? With proper nominal height Sun-angle setting for the Hasselblad, how's the window? Is F/8 at a 2/50th?

CC Paul, I didn't get the F-stop that you gave on that. F/8 and 2/50th?

SC Yeah. That's what sticks in our mind. But Dietrich says it ought to be F/11. So, if you could verify that for us. As I said, that's for out-the-window, nominal air (garble) with high foot angle.

CC Roger.

PAO Skylab Control, Houston; 12 hours 50 minutes Greenwich mean time. We have acquisition now with Madrid for approximately 7 minutes and 40 seconds.

CC PLT, Houston.

SC Go ahead.

CC Roger. In the form that on the back of your 70-mm photo log, it gives a setting for that. And it's listed for f/11 for general seeing.

SC Yeah. Here it is. I see it now. We had the (garble) photo log (garble) because the velcro pattern wasn't right on the Hasselblad we brought up with us in the command module.

CC Roger.

SC You're right. We knew that (garble) was some place.

CC If you keep up with where they're all at, you're lucky.

SC Why not (garble) so I can give him something to do.

CC Roger. They were just loafing.

SC Right. We really knew it all the time.

CC By the way, before I leave the scene here, I wanted to congratulate Joe the other day for finding the Sun for us. We never did get a chance to talk again.

SC We now have the spot exactly marked; so any time you need any help, just give a call. (Humor).

CC V.. good.

SC Hello, Houston. You still there?

CC Affirm.

SC Hey, how about giving us the coordinates of the pyramids so we can plot them on our orbital map? We want to see if we can find them.

CC Roger. It's in work.

CC We're 1 minute until LOS; see you again at Honeysuckle at 13:34, 1334.

SC Roger.

END OF TAPE

SL-II MC284/1
Time: 07:58 a.m. CDT, 6:12:58 GET
5/30/73

PAO Skylab Control, Houston; at 12 hours 58 minutes Greenwich mean time, passing out of acquisition range now with Madrid. The next station to acquire will be Honeysuckle in approximately 36 minutes. At this time we'll playback the tape of the stateside pass which occurred during the change of shift conference. During this pass CAP COM Bob Crippen reads up the morning news to crew aboard Skylab.

CC Skylab, Houston. We're AOS over the states for the next 13 minutes.

SC Roger, Houston.

CC Roger and if you guys have finished picking one another and you're interested I can give you the morning news.

SC Go ahead.

CC Roger. The morning news as follows. Russia launched a meteorological satellite Tuesday, designed to help forcast the weather. Tass news agency announced that the craft is orbiting the Earth every 102.5 minutes with parameters ranging from 565 to 539 statute miles. The satellite will photograph cloud (garble) both day and night sides of the Earth and will make the heat reflected from Earth. And the Texas Legislature has voted to restore the death penalty in certain cases. Governor Dolph Briscoe is backing the bill which is expected to face tests of it's constitutionality. The feud over fishing rights continues between tiny Iceland and Great Britain. British fishing trawlers operate within 50 miles of Iceland shores and Iceland doesn't like it. The controversy threatens to upset the stability of NATO. Secretary of State William P. Rogers just returned from a 17 day, 8 country visit, to Latin America. He says that anti-American feelings are not strong despite staunch nationalism in Latin countries. Rogers calls his visit a success and will lead to more cooperation between the United States and its southern neighbors. The engagement of Princess Anne, daughter of Queen Elizabeth II, was announced today in England. The Princess will marry a commoner, cavalry officer Lieutenant Martin Phillips son of a marufacturer and country squire. (Garble) People in hereby Dallas are concerned with a mysterious blue stuff the blob which first appeared about two weeks ago oiling it's way up through a surburban back yard. The blob as described by those brave enough to go near it is blackish, mucus inside, reddish with pink bubbles on top. It is thought to multiply and is said to be a combination of various bacteria. To date, samples collected have died before they could be analyzed. And for the sports news. Again the Indianapolis 500 was postponed until hopefully this morning. Rain is

SL-II MCC04/1
Time: 07:58 a.m. CDT, 6:12:58 GET
5/30/73

again expected, however, so race officials are cautious about whether the race will make its third starting date. And the Houston Astros lost to Pittsburg, 4 to 2 on Monday. And they lost last night to the Cubs 7 to 1. The White Sox beat Cleveland twice Monday, 6 to 3 in 21 innings in the extended game and 4 to nothing in the regular scheduled game. And that's all we have for this morning on this mornings news.

SC Rog, Houston. It looks like a beautiful morning down there.

CC Great. I think you can probably see it better than we can in here. Flight Director tells me that it is magnificent out this morning. It looks like a good day for an EREP.

SC We sure hope so. We can see from Matagorda all the way on up (static). How about scheduling another EREP pass to get the blob?

CC We'll work on.

SC Hey, Crip. I've got something for you.

CC Go.

SC My cold water drink dispenser is beginning to - it's just a little bit - handbook on page 4-81 has the procedures. There is no rush but obviously it's going to need to be changed out here one of these days so how about noting it down to schedule it because it looks like it's a fairly lengthy procedure. I really don't want to take the time to look and see but I remember doing it a long time ago and it ooses just a little bit but it obviously has got a bad O-ring in it.

CC Roger. Could you say where it's leaking at, Pete?

CDR Yeah, it's coming up right around the stem - the black stem and the brown knob that goes from fill to - brown knob, you know, through - you know, just oozing up between there a little bit.

CC Rog.

PAO Skylab Control, Houston, at 13 hours 4 minutes Greenwich mean time. That concludes our playback of the tape. We now show 31 minutes until acquisition of Skylab through Honeysuckle on the 229th revolution.

END OF TAPE

SL-II MC-285/1
Time: 08:33 a.m. CDT, 6/13:33 GET
5/30/73

PAO Skylab Control, Houston, at 13 hours 34 minutes Greenwich mean time. One minute away now from acquisition through Honeysuckle as the crew aboard Skylab will be preparing to start their work-day today. We'll stand by and monitor.

CC Skylab, Houston through Honeysuckle 2 minutes.

PAO We're receiving data, now, through Honeysuckle. No conversation, yet, with the crew. As we pick up, Paul Weitz should be loading the film magazine for S019, the UV stellar astronomy experiment.

PAO And - Science Pilot, Joe Kerwin, should be activating - -

CC - - Houston through Honeysuckle. We've got about 1 minute to LOS now. And we'll be seeing you at Goldstone at 03. And we'll dump the recorder.

SC Okay.

SC Hey, Hank. I've got a question on S019.

CC Go ahead.

SC According to the prep that Pete was instructed to do yesterday, we don't have the optical canister on it yet. Shouldn't I - I've got to put that thing on before I put the film on, right?

CC That's affirmative.

SC Well, something dropped down the crack then. All right. I'll pick up with that.

CC Roger.

SC I'm going to be behind again now, and it's all your fault.

CC Well, that's all right. We'll take our lumps.

PAO That was Paul Weitz talking to CAP COM, Henry Hartsfield, who is now occupying that position in the Mission Control Center.

PAO Meanwhile, Science Pilot, Joe Kerwin, should be activating the rotating litter chair for the M131 experiment, in which he will serve as an observer, and Paul Weitz will serve as a subject. This activity scheduled to start at about 1400 hours Greenwich mean time. Also scheduled to start at 1400 hours Greenwich mean time, will be an ATM experiment, with the commander, Pete Conrad, at the display and control console. We've had loss of signal through Honeysuckle. The next station to acquire will be Goldstone in some 24-1/2 minutes. This is Skylab Control, Houston.

END OF TAPE

SL-II MC-286/1
Time: 08:56 a.m. CDT, 0:13:56 GET
5/30/73

PAO Skylab Control, Houston, at 13 hours 56 minutes Greenwich mean time. Some 6-1/2 minutes away, now, from acquisition through Goldstone, over the States. When we acquire Skylab, through Goldstone, we expect a live television of the Apollo telescope mount operations, with Commander Pete Conrad at the display and control console. He goes through the following sequence: 30 seconds TV of H-alpha 1; 15 seconds TV of H-alpha 2 (These are spec ral lines denoting different fields of view.); 15 seconds of television of S052, the white-light coronagraph; and 15 seconds of the UV monitor. Three instruments are actually involved - the H-alpha television, the S052 telescope, and the XUV monitor, providing X-ray type emissions of the Sun. We're some 5-1/2 minutes away, now, from Goldstone. And at 13 hours 58 minutes Greenwich mean time, this is Skylab Control, Houston.

END OF TAPE

[illegible]
Time: [illegible] CDT, 6/14/02 GET
5/30/73

PAO [illegible] Skylab Control, Houston, at 15 hours 2 minutes Greenwich mean time. Less than a minute, away now from acquisition with Skylab through Goldstone. During this pass we do expect a live television transmission of the Apollo telescope mount operation. Pete [illegible]ad is scheduled, per the Flight Plan, to be at the display and control console. We'll stand by and monitor this pass over the States on the 229th revolution of the orbital workshop.

CC Skylab, Houston through Goldstone 11 minutes.

SC Roger, Houston. And I'll be getting ready to send you your down-link in just a second.

PAO That's Commander Pete Conrad replying to the call from Henry Hartsfield in the Mission Control Center.

SC Hank, you want to sing out when you've got enough, or you just want me to run through this down-link per the card?

CC We'd like for you to run it per the card.

SC Okay.

CC Okay. We had your H-alpha, Pete. But we're not getting anything now.

SC Okay. The white-light coronagraph power is just coming [illegible].

CC Roger. Copy.

PAO Conrad reporting he's proceeding with the S052 - -

SC Doing a little cleanup, and I just barely made it to the panel in time.

SC Just to bring you up to date on our - -

CC Okay. We're getting you (garble) now, Pete.

SC Our fourth plainiff bag was stowed; so we have four full plainiff bags down in the stowage place. And the third suit was finished drying, and that's put away.

CC Roger. Copy.

SC And, also, I made an addition to stowage, which is on B channel. You might alert the stowage guys to listen to it.

CC Roger. We'll take a listen to it.

SC And there's your white-light coronagraph.

CC Got a beautiful picture down here.

SC Hey, did you see that thing go through the scope?

CC What was that going through there?

SC I don't know. It looks like another satellite to me, or something.

SL-II MC-287/2
Time: 09:02 a.m. CDT, 6:14:02 GET
5/30/73

CC Yeah. We saw two or three things singing through there.
SC Oh. Paul says he thinks it's stuff outside the spacecraft. Here comes another one.
CC We're seeing your integration now, Pete.
SC I wish we could get the picture like integration shows.
SC I think 3-second ones are a little bit too long. I like the first one (garble), which were about a second. I don't know, you might give me a comment back.
CC Wilco.
SC You know, we might verify that with Houston, while we're - I'm sorry, in contact. Houston, we've not been using the event timer of the power-saving measure. Is that correct?
CC Stand by.
CC Roger. That's correct.
SC Okay.
PAO That was Joe Kerwin making that call.
PAO He, presently, should be performing the role as an observer for the M131 experiment, the rotating litter chair.
CC Skylab, Houston. We're about 1 minute to LOS. We'll be coming up on Bermuda at 16. And we went back and looked at that S019 thing. I guess we want to give a few of the lumps back. Our pad did call for going through the steps that install the optical canister. However, when we said, "Do not install film can," I guess it could have been confusing.
SC All I had, yesterday, was step 1-6; is it somewhere in there?
CC That's affirmative.
SC Okay. I'll take the (garble) box and go back and look.
CC No sweat. Don't worry about it.
SC Who (garble) now? I'm mad, and I want to know who to be mad at, you or Pete?
CC (A little humor in voice) I think it's with Pete's pad to cover. Why don't we call it even.
SC You won't say it's CDR. All right. I'd like to have a reason to pick on him today.
PAO That's Paul Weitz talking about the installation of film for the S019 experiment.
PAO We're approximately a minute and a half away from acquistion through Bermuda. This is Skylab Control, Houston.

END OF TAPE

SL-II MCC 66/1
Time: 08:11 a.m. CDT, 6:14:13 GET
5/30/73

PAO Skylab Control, Houston, at 14 hours 16 minutes Greenwich mean time. The Apollo telescope mount console as well as the flight director on a - certainly on a preliminary basis, were very pleased with the performance they saw this morning during that Goldstone pass.

CC Skylab, Houston through Bermuda 5-1/2 minutes.

SC Roger, Houston.

SC Say, Houston. Are you with us?

CC That's affirmative. We've got about 3 more minutes.

SC Okay. Did you get the message about 82A on B channel last night? If not, let me run it by real quick. When you get to the end of a sequence and you hit the STOP, the OPERATE light stays on, and we can't tell whether it's stopping or not; so we're either hitting a door switch or main valve or drop - just to get it to stop. How about looking at that.

CC Okay, will do. Okay. They did get the message last night, Pete, and they have been looking at it and trying to figure it out.

SC Okay. Thanks, Hank.

SC Henry, the main thing is that if we've got to use that door switch to terminate the exposure - well, so far, it's been reaction time plus 8 seconds for the door to close, and they've been overexposed if that's really happening.

CC Roger; copy.

CC Skylab, Houston. About 30 seconds LOS; Canaries at 26.

SC Roger, Houston.

CC CDR, Houston. If you're still with us, we think you ought to be rolled to 10?0.

SC Say again.

CC Roger. We think your roll ought to be 1080, 10,800.

SC Why?

PAO Skylab Control, Houston. We've had LOS with Bermuda. The next station to acquire will be Canary in approximately 3 minutes.

END OF TAPE

CC Skylab, Houston, through Canaries 9-1/2 minutes.
SC Roger.
CC And we've taken a look at the S082. I guess we've looked at all the telemetry and it shows that we're getting correct framing and normal shutter operations in fact, we don't see anything wrong with telemetry. And we think you've probably got a ready operate light problem on board and the relay is sticking to keep the light on and we feel that there is no action required on your part to terminate the experiment.
SC Okay, Hank, thank you.
PAO The discussion on 82A centering around the Apollo telescope mount. And more specifically the control and display console. We've got approximately 7-1/2 minutes remaining of acquisition time during this pass over Canary.
SC Houston, are you still there?
CC Roger, 5-1/2 more minutes.
SC Okay. Paul and I are starting the M131 (squeal) We're 30 minutes late (squeal) for this experiment.
CC Joe, you are unreadable. You're getting a lot of squeal and feedback there.
SC (Squeal).
CC There is still too much feedback.
SC How you doing. Okay whenever anybody uses the sail, that fouls up everything in the experiment until we turn them off again. Okay, you have given us 1 hour to do an OGI N&MS and I can tell you right now that isn't going to cut it. And we're going to be later on the time line today. Our PT will probably go away. And we'll call you after we're done to tell you how much time to give us next time.
CC Okay. Good show. Why don't you do that and then we can kinda get a hack at what this is really going to take.
CC CDR, Houston. We have got you down here in the auto 2 mode on S082A and I think the building block called for a time mode. We're going to have to watch that to keep within our film budget.
SC That's my favorite mistake. I've been making it for a year.
CC Roger. It's easy to do.
SC Hey, Hank that's a function of the powerdown. Why do we have go to the screwy darn switch positions for those two experiments anyway?
CC We'll look into that one. And we're about 30 seconds from LOS. Be coming up on Honeysuckle at 1:1.

SL-2 [illegible] 09/2
Time: 09:24 a.m. CDT, 6:14:24 GMT
5/30/73

SC Okay. Sorry about that. I do that every time. I read the block that says time and I assume it means the amount of time of the exposure and I've been doing that for a year and I can't get it out of my head.

CC (Laughter) Roger.

PAO Skylab Control, Houston; 14 hours 36 minutes Greenwich mean time. We've had loss of signal through Canary. During that Canary pass we heard from Joe Kerwin in an almost unreadable transmission that Paul Weitz had started the rotating litter chair medical experiment in which Kerwin serves as an observer. Next station to acquire will be Honeysuckle in approximately 34 minutes. This is Skylab Control, Houston.

END OF TAPE

SL-II MO-290/1
Time: 10:09 a.m. CDT, 06:15:09 GMT
5/30/73

PAO Skylab Control, Houston, at 15 hours 10 minutes Greenwich mean time. Coming up now on acquisition of Skylab through Carnarvon - or rather, through Honeysuckle. The Apollo telescope mount console still being manned by Commander Pete Conrad. The television scheduled on this pass is actually a TV dump. It's an engineering test on the Apollo telescope mount. The test being done in the dark with a test pattern on the back of the XUV monitor - this to measure any possible degradation. Meanwhile, the first student experiment should have been deployed by the time of acquisition. This is the ED76 neutron analysis experiment, which is designed for the measurement of the ambient neutron flux existent.

CC Ten minutes.

SC Okay. Houston, SPT.

CC Go ahead.

SC If you timed that, we're just now finishing the OGI load on the PLT. If we go into the MS mode, we're going to wipe out another hour.

CC Roger; copy.

SC Yeah, look, I got a suggestion on that. It's going to blow the rest of today's flight plan with a screw-up like that. We ain't gonna get ED76 done nor are we gonna get TV 22. So I'd make a decision down there to knock it off right now and try to get back on the time line, or finish what you got going. One of the two.

CC Okay, I'll get right back to you.

CC Skylab, Houston. We concur with the deletion of TEAV 22 and ED76; we'd like to press on with M131.

SC Okay. Very good. Thank you.

SC Yeah, I don't know where you came up with an hour for that one. And granted, it took an hour and a half on the ground under the most ideal conditions for the pass.

CC Roger.

PAO The rotating - the litter chair experiment running longer than projected in the flight plan. That report coming from Skylab. Present plan is to delay the deployment of the educational experiment. That's ED76, and the television dump, which is an engineering test over Carnarvon.

PAO Skylab Control, Houston; 15 hours 15 minutes Greenwich mean time. Still under acquisition now through Honeysuckle.

SC Houston, are you there?

CC Roger. Go ahead.

SL-II MC-290/2
Time: 10:09 a.m. CDT, 06:15:09 GET
5/30/73

SC Okay, I finally figured out what happened on SO19 yesterday. My pad said go through step 6 on page 1-2. And I think it should have said go through step 6 on page 1-3, and then do step 7 on page 1-4. Try that one on it and see if I win.

CC You win. It should have said page 1-3.

SC Thank you.

SC That's okay. We're even. You got me this morning on the ATM.

SC While you're there and if you haven't got anything to do, let me tell you that a couple of changes we've made here and we haven't finally made the final one. But it turned out stowing the suits on the radial hatch was very poor. Even if you'd squashed the suit as hard as you can, you can't get all the air out of them, and in zero-g they really form the shape of a full-sized body. So we have restowed one suit on top of - let me get the lockers straight - 116 and 141. Then the other suit is down with its feet toward the drogue in the front end and it jets towards the S190 window heater control panel. And right at the moment, the third one is in back of the MDA hatch, so that we could close the hatch in a hurry if we had to. But that, to me, is not a satisfactory location. We're going to look around for another one, because it's sort of blocking some of the air vents back there. And I just moved that suit up here this morning. But we'll find another place for it and let you know where it is in case you want to pass that along to the other guys, you know.

CC Roger. We copy.

CC And, CDR, Houston. SO19 is going to require a star tracker, and we need the dump - it'll be over in about another 5 minutes, and we need you to bring the star tracker back up, using the pad that's onboard.

SC Okay.

CC CDR, Houston. We're are a little concerned that the teleprinter didn't print what we sent up there. Our pads definitely said page 1.3 - or 1-3. And if you received a 2 up there, maybe we're not getting out what we're putting in.

SC Well, did you have two pads, per chance, and the wrong one come up, because mine very definitely says page 1-2 and 1-4.

CC Roger. Would you verify your message number.

SC Unfortunately, it's in a particular file.

CC Roger; copy.

SC But it confused me yesterday only putting half of it on. And that's why I remembered specifically that it did say page 1-2, because I read it two or three times as to

SL-II MC-190/3
Time: 10:09 a.m. CDT, 06:15:09 GMT
5/30/73

why I got about half of this tape together, and that's not going right. But the pad says 1-2; so I'll do it.

CC Okay, we'll look into it. We may send you a test message here again. We're coming up on LOS, and we'll be coming to Hawaii at 30.

SC Okay.

PAO Skylab Control, Houston; 15 hours 20 minutes Greenwich mean time. Passing out of acquisition now with Honeysuckle. The next station to acquire will be Hawaii in approximately 10 minutes. That last part of the conversation over Honeysuckle centered on a teleprinter message, describing procedures for film installation for the S019 experiment. That was Pete Conrad principally speaking of that subject. He had the task yesterday; Paul Weitz today. We've got approximately 9-1/2 minutes until we acquire Hawaii, and this is Skylab Control, Houston.

END OF TAPE

SL-II MCC91/1
Time: 10:29 a.m. CDT, 6:15:29 GET
5/30/73

PAO Skylab Control, Houston at 15 hours 29 minutes Greenwich mean time. Less than a minute away now from acquisition of Skylab through Hawaii on the 230th revolution of the workshop. We'll stand by and monitor this pass.

SC Go ahead Houston. We have the star.
CC Good show, thank you.
SC And Houston, CDR. Is it okay to do an M (garble) momentum dump 3 minutes early?
CC Standby.
CC That's affirmative CDR. Go ahead.
CC Skylab, Houston. One minute to LOS. Goldstone at 42 and is M131 still in progress?
SC I think so, Hank, they're probably on B channel.
CC Roger. Copy.
PAO Skylab Control, Houston. We've had loss of signal through Hawaii. The next station to acquire will be Goldstone in approximately 1 minute 40 seconds. Commander Pete Conrad has been working at the ATM display and control console most of the morning while Paul Weitz the pilot aboard Skylab, after installing the film for S019 the UV stellar astronomy experiment has been serving as a subject for the M131 experiment, the rotating liter chair medical experiment. Dr. Joe Kerwin has been acting as the observer for this. This exercise taking somewhat longer than called for in the flight plan. Weitz is scheduled to start the S019 into operation late this morning. This setup in the scientific airlock and designed to photograph 50 star fields with three exposures each during the course of the mission when the Skylab is on the dark side of the orbit. Standing by now for acquisition through Goldstone at 15 hours 42 minutes Greenwich mean time this is Skylab Control, Houston.

END OF TAPE

SL-IL MC2271
Time: 10:41 a.m. CDT, 6:15:41 GET
5/30/73

CC Skylab, Houston through Goldstone for 7 minutes.
SC Roger, Houston.
SC Houston, SPT.
CC Go ahead.
SPT Okay. We finished the M131 MS test except for manually logging all the data which I will have to do on B channel because we didn't get a program start light at 0 RPM. So I went ahead and took the data manually and I'll put it on channel B. The system does work okay and positive RBM's. I checked that out.
CC Roger. Copy.
SC And let's see that was a total elapsed time of about an hour and 25 minutes for both the ODI and the MS mode.
CC Roger.
SC Say Hank, are you guys working 32A. I haven't noticed any strange counters counting anything. I'm still on frame 182.
CC Roger. We'll take a look.
SC GARBLE that's the one with the operate light that stays on, but the frame counter is also not counting so I'm getting suspicious.
CC Roger. We copy.
CC Okay, very good. We're there - you know like you say when you sit down here you're not sure what happened at the meeting. I mean did you come up with any complete summary list of safety problem foods, you know, problem foods GARBLE.
SC Houston, SPT; you still there?
CC Roger. We've got about a minute left, Joe.
SPT Okay. Just wanted to ask you to add ten minutes to that time estimate for the OGIMS for voice recording and cleaning up the cards.
CC Roger. Will do.
SC We'd like to have you do it.
PAO Skylab Control, Houston; 15 hours 50 minutes Greenwich mean time, about 3 minutes away now from acquisition through Bermuda.

END OF TAPE

SL-II MC-293/1
Time: 10:52 a.m. CDT, 6:15:52 GRT
5/30/73

CC Skylab, Houston through Bermuda for 8-1/2 minutes.
SC Roger, Houston.
SC Houston, SPT.
CC Go ahead.
SC Hey, remember Rusty saying that he had arranged to have stowed on board more different kinds of mushrooms for the triangle shoes, besides the ones that were stowed on the ATM chair? I don't know where those are. Could you research that for me, please?
CC Will do.
PAO Skylab Control, Houston; 15 hours 56 minutes Greenwich mean time. Skylab now under acquisition through Bermuda. Very little conversation at this time. Our CAP COM in the Mission Control Center, Henry Hartsfield.
PAO The present Flight Plan would put Kerwin and Weitz in their physical training and personal-hygiene periods. Commander Pete Conrad apparently still manning the console of the - for the Apollo telescope mount. We've got approximately 5 minutes remaining in the Bermuda pass. We'll stand by and continue to monitor. This is Skylab Control, Houston.
CC SPT, Houston.
SC Houston -- (static)
CC SPT, Houston.
SC Go ahead.
CC Okay. We've got the answer on that. Other than the ones that are screwed to the ATM chair, there are two more sets in D416.
SC D416. Thank you very much.
CC Skylab, Houston. One minute to LOS. Canary's at 03, with a recorder dump.
PAO Skylab Control, Houston; 16 hours 3 minutes Greenwich mean time. We've had loss of signal through Bermuda. Standing by for acquisition with Canary.
CC Skylab, Houston through Canaries at Ascension for 16-1/2 minutes.
CC And, SPT, I'd like to ask you a question, if it's convenient.
SC Okay. Wait 1.
SC Go ahead, Houston.
CC Okay. Want to jog your memory a little bit, Joe. Yesterday, we had you look at filament 62 - JOP 4, building block 3. That was at 0026. And today's pad calls for observation of the exact same point in the filament, building block 3 at 17:13. And we asked you to jot down the (garble). And it wasn't in the MDRS; so we need that information to calculate our (garble) for today. Do you have that?

SL-II MC-293/2
Time: 10:52 a.m. CDT, 6:15:52 GET
5/30/75

SC (Laughter) I didn't write down the up down left right, Hank. If that was in the summary sheet, I missed it. However, I can point to the exact same orientation in the filament from visual memory, if that'll do.

CC Okay, Joe. Thank you.

SC I guess it won't do, huh?

END OF TAPE

SL-II MC-194/1
Time: 11:00 a.m. CDT, 6:16:06
3/30/73

CC SPT, Houston. I guess we don't need that information as long as you remember and can point it to the same place. That's good.

SC Okay. Did the jump summary sheet have blanks for me to write down that stuff?

CC I don't think it did. I think that's our error.

SC Okay. If you want to, you know, uplink a correction for the sheet, we'll put it in.

CC CDR, Houston. No response required. We've looked at that S082A data again. And it appears to us that all the internal workings of the instrument are proper. And we think that perhaps your panel displays are incorrect.

SC Okay., Houston. Fine. I've been operating this thing (Garble).

CC Roger. And we want you to just to continue to use the instrument and disregard the OPS light.

PAO Skylab Control, Houston. That message passed on to Pete Conrad to continue to ah - -

CC Skylab, we're about 1 minute from LOS. We'll be coming up on Carnarvon at 46.

SC Roger.

PAO Message passed on to Pete Conrad, to continue with the Apollo telescope mount in the S2A

PAO We're 16 hours, 19 minutes Greenwich mean time. Seconds away now from loss of signal with Ascension.

PAO We've had Ascension LOS. The next station to acquire will be Carnarvon in approximately 26 minutes.

PAO This is Skylab Control, Houston, with an announcement. There will be a briefing on earth resources surveys from space at 2 P.M. today in the Johnson Space Center briefing room in building 1. The briefing is sponsored by the American Institute of Aeronautics and Astronautics. And will feature discussions from users of space sensing in such fields as crop management, timber surveys, and the energy crisis. This briefing will not be carried on the Public Affairs release line. A transcript will be made. This is Skylab Control, Houston.

END OF TAPE

PAO Skylab Control, Houston; 18 hours 48 minutes. We have acquisition now through Carnarvon.

CC Skylab, Houston through Carnarvon for 9 minutes.

SC (Garble) - We've had some problems with S019. Briefly, we're eating right now and reading the malf procedures -. about to read the malf procedures (garble). is doing the TV stuff and all this stuff, but what it did, Hank, is it extended all right the lefthand knob, I figure, which (garble) (static) I believe, is very, very rough, stiff and jerky. I did not take it more than a degree and a half out of zero, because I didn't want to get it jammed out there. The righthand knob, which I think is rotation, doesn't work at all. It feels like the clutch is slipping. We're going to read the malf procedures, and if we don't hear any different from you, what we're going to do is pull it in and try to extend it inside the workshop and see if we can see what's hanging up on it.

CC Roger. We concur.

PAO Skylab Control, Houston. That callup from Joe Kerwin refers to the S019 UV stellar astronomy experiment, which is deployed through the scientific airlock to photograph star fields when Skylab is on the dark side of the orbit. We're presently under acquisition through Carnarvon and back-to-back with Honeysuckle.

CC CDR, Houston.

SC Go ahead.

CC Okay, the CDR has an unscheduled housekeeping at about 18:12. Our CSM waste water is getting up to the limit now, and we'd like for him to utilize that period to do the CSM waste water dump of the OWS. And it's on page 1-18 of the CSM systems checklist, and it's one that we had previously Xked out. But we're in a configuration, and we need to use that method.

CDR I understand that. We already did that the other night.

CC Okay, and we need to do it again here at this time. And a little reminder for him, too, that we've got this CSRM mal we want to run at 18:36 over Guam.

SC Okay. He'll try. That's pushing it awful close, Hank.

CC Okay. That water dump should take about 15 minutes.

SC No, it doesn't. It takes more than that if you monitor the water - the waste water tank, unless you guys have confidence that we can either time it or that you can monitor it.

CC I guess we'd prefer for you to monitor it.

SL-II MCC93/2
Time: 11:45 a.m. CDT; 6:16:45 GET
5/30/73

SC The last time we did it, it took about 45 minutes.
CC Are the hoses still hooked up?
SC Negative.
CC I see. We were assuming everything was all hooked up still.
SC Well, there are two reasons. First off, we like to keep a neat ship, and secondly, based on conversations prior to launch, we were under the assumption, all three of us, that we were only going to have to average it that one time.
CC Roger. We told, I forget who it was - we told one of you guys the other day that we were going to have to do it again today. We thought it would be tonight, but looks like it's going to have to come earlier.
SC Roger. That was after we cleaned up.
CC Roger; understand.
CC Skylab, Houston. If you're running TV 3, would you verify the video switch on the ATM?
SC Yep, you caught it.
SC You didn't miss much anyway, Hank.
CC Roger; copy.
SC Sorry about that, but it's not in any of the checklists that are (garble) the TV book, and I guess I'm going to have to sit down and write it in every page.
CC Roger. We're talking about that down here, Pete, now. It seems there is going to be a problem of coordinating between the ATM console and the other TV requirements.
SC (Laughter) One of my trash bags came open, and unfortunately you can't see on the (garble) but your CDR's in the corner chasing bits of pieces all over.
CC I wish we could see that.
SC I had crackers with my hot dogs today, and I don't know if you've noticed what I've been reaching at or not, but at little crumbs, because the crackers are - tend to break, as you may have guessed, and they (garble) are crumby.
CC Roger. We copy. Crumby crackers.
SC I guess it all (garble) as crumbly is a better word.
CC Roger. Crumbly.
CC Skylab, Houston. In regard to the SO19, I'm sure you've already done this, but we would want you to verify that the brake is off on the rotation, and if you do retrack, we want you to go very slow and easy because the mirror, I gather, is out of detent.

SL-2 MC295/3
Time: -11:43 a.m. CDT, 6:16:45 GET
5/30/73

SC No, I don't think it is, Hank. And we have - as a matter of fact I retracked it - I once extended it again. And we tried to do it again, and it does function all right. But I did want to go far out. Yes, we did have the brakes off, and we'll pull it back in. When I get a chance, I'll look at the malf procedures. And we'll at least drag it out one time while we've got it in there and see what we can see.

CC Okay, good shot. And we're about 30 seconds to LOS; we'll be coming up on Hawaii at 09.

SC You there, Hank?

CC Roger.

SC You guys getting live TV ?

CC That's negative.

SC Oh, okay. I thought you weren't getting it; that's how you remembered to switch. But I'm glad somebody thought of it anyway.

CC Roger. ENCO can monitor that switch position.

SC Going there from now on in (garble).

PAO Skylab Control, Houston; 16 hours 56 minutes Greenwich mean time. Skylab now passing out of acquisition with Honeysuckle. The next station to acquire on the 231st revolution will be Hawaii in some 12-1/2 minutes. During the Honeysuckle pass, Paul Weitz reported that he has deployed and taken back in, a couple of times, the S019 boom. And based on the last report, he will attempt to bring it back in again and see what the problem might appear to be, looking over the equipment in concert with the malfunction procedures. The crew apparently having lunch during this pass. And also a report of a late callup of turning on a TV switch to show a scene of the crew eating. However, a call was made from the ENCO flight console position here in Mission Control that the switch was not on. And this was remedied by Paul Weitz aboard Skylab. We're at 16 hours 57 minutes Greenwich mean time, and this is Skylab Control, Houston.

END OF TAPE

SL-II MC-296/1
Time: 12:07 p.m. CDT, 06:17:07 GET
5/30/73

PAO Skylab Control, Houston; 17 hours 7 minutes Greenwich mean time. Standing by now for acquisition of Skylab through Hawaii Tracking. This is scheduled as a 6-minute pass over Hawaii.

SC Houston, SPT.

CC Go ahead.

SC I take it from our previous talk that the PI's want me to use precisely the same pointing and roll on (garble) 62 that I used yesterday. That's done on the pad, is that correct?

PAO That's Joe Kerwin calling from Skylab, who has now replaced Pete Conrad at the control and display console of the Apollo telescope mount.

CC I want you to do, Joe, is just get as close as you can to what you had yesterday.

SC Okay, but I'd like them to put that kind of stuff on the pad if they do this in the future, because it's not in the summary sheet. In fact, my interpretation would have been the opposite. If they asked for advice from the ground, I would have told them it had a different part of it, ordinarily.

CC Roger. That's a good point.

CC And, Skylab; Houston. For information, we've been experiencing some sub-comm problems on our ATM data, and we're going to be trying to cure this by switching some equipment around the PCM system via commands.

SC Okay, we got the F power off.

CC And I have one other thing I'd like to throw out for you. This afternoon, after we get the EREP going, all of you are going to be top-side. And we were wondering how you felt about maybe turning all the lights off down in the workshop, at least minimizing the lights, to help with the power problem, because we're going to be running the batteries down on the EREP.

SC Yeah. Okay, Hank. We've been doing that. We're running with - we try and keep all the lights out down here as we possibly can. So we've been running low power, and we will turn them all out down here.

CC Okay. Good show, Pete.

SC And say, Hank, when do you plan to dump the VTR? The reason I say that is I'm a little ahead right now, and I think I can stay ahead on the water dump and everything. And if I can help Paul on 19, we may pick up some of this TV22, which only takes just a couple of few minutes, and we can fake it - him doing it again; he's already deployed it.

CC Okay. Let me get an answer on that.

SL-II MC-296/2
Time: 12:07 p.m. CDT, 06:17:07 GMT
5/30/73

SC Hank, a little clarification on S019.
CC Go ahead.
SC Okay, just to make sure that you understand what I'm talking about, because I think I had the knobs backwards. It's the rotation that is very stiff and jerky and difficult to turn. And it's the tilt knob which is free-wheel. That's just clarification.
CC Roger. Thank you.
SC And, Houston; CDR. We got you about 20 minutes on that tape - TV3. Five of it of a blank ATM in 15 per TV3, which I think is what you need. It looked pretty good to me.
CC Roger; copy.
PAO Skylab Control, Houston. We earlier heard Paul Weitz on this pass describe the S019 equipment, which he has again brought back inside.
CC Skylab, we're about 1 minute from LOS. We'll be coming up on Goldstone at 21, and we'll have an answer for you on the VTR there - when we're going to get it dumped.
SC Okay. If you're either going to get it dumped real fast, fine. We can do it later tonight, or if you can hold it, why, you know, it doesn't make any difference to us. We can pick up that 22 anytime.
CC Roger; copy.
PAO Skylab Control, Houston; 17 hours 16 minutes Greenwich mean time. We've had loss of signal with Hawaii. Goldstone acquisition in approximately 5 minutes and 15 seconds.
SC Hey, Hank, you still there?
CC Roger.
SC Henry - -

END OF TAPE

SL-II MCC 7/1
Time: 12:18 p.m. CDT, 6:17:18 GET
5/30/73

SC — We're re-reading the checklist. It seems the one step I overlooked in S019 was opening the film hatch. That's in no way related to the problem is it?

CC — We'll check it.

SC — I don't see how it could be but you might as well check it before I bring it in out of the airlock.

PAO — That was a bonus callup from Pilot Paul Weitz. We still show 2 minutes 40 seconds until time of acquisition through Goldstone. Apparently reaching the control center through Hawaii.

CC — Skylab, Houston through Goldstone for 5 minutes.

SC — Go ahead.

CC — Skylab, Houston for the PLT you are absolutely correct there is no relation between the film hatch and the problem you've got.

SC — Yeah, (garble) especially since we run the same gear at 183 and don't even have that on. I just wanted to verify it though.

CC — CDR, Houston. It's going to take us another REV and a half to get the VTR dumped and we'll give you a GO when you're clear to use it again.

CC — Skylab, Houston. One minute until LOS; Bermuda at 30.

PAO — Skylab Control, Houston; 17 hours 28 minutes Greenwich mean time. We've had loss of signal with Goldstone; some 2-1/2 minutes away now from acquisition of Skylab through Bermuda.

PAO — Skylab Control, Houston. Presently Science Pilot, Joe Kerwin manning the display and control console for the Apollo telescope mount and Pilot Paul Weitz working with the malfunctioning S019 experiment equipment.

PAO — Skylab Control, Houston. Standing by now for acquisition with Bermuda. This should be about an 11 minute pass.

CC — Bermuda for 11 minutes.

SC — Good.

END OF TAPE

SL-II MC-298/1
Time: 11:33 p.m. CDT, 6117:33 GET
9/30/73

PAO Skylab Control, Houston; 17 hours 36 minutes Greenwich mean time. Some 5 minutes 20 seconds remaining on this pass. Literally no conversation with the crew during the Bermuda pass thus far. We'll stand by and continue to monitor.

SC Calling Houston, CDR.

CC Roger.

SC Okay. I just commenced the water tank dump.

CC Roger. Thank you.

CC Skylab, Houston. We're about 30 seconds from LOS. Be coming up on Ascension at 48, with a data recorder dump.

SC Okay.

PAO Skylab Control, Houston, at 17 hours 41 minutes Greenwich mean time. We've had loss of signal through Bermuda. The next station to acquire will be Ascension in approximately 6 minutes. Very little conversation during our pass over Bermuda for Skylab.

END OF TAPE

PAO Skylab Control, Houston; 17 hours 47 minutes Greenwich mean time. Standing by now for acquisition of Skylab through Ascension. Skylab now on its 232nd revolution.

PAO We're now receiving data through Ascension. This should be a pass of some 10 minutes in duration.

CC Skylab, Houston through Ascension for 9-1/2 minutes.

SC Okay.

SC PLT, Houston. If it's convenient, I'd like to get a question answered. Could you get the full 13 turns on extending before you hit the stop?

SC That's affirmative. As a matter of fact, it went out 13-1/2.

CC Roger. Copy.

SC I got it in now. I've got the business end off and I'm just about to go ahead and extend it in the cabin.

CC Roger. Understand.

SC And, I've got a question for you, something we've been mullin over. These even passes are going to mainly be over the states, where you're going to have pretty good coverage. What do you think of, if we switch the voice recorder to Channel A and run - set the hard mike on Channel A during the Europe pass. Is that a good idea or not so good idea?

CC We would love that.

SC Okay. Because, we all have to be on the same channel anyway.

SC Well, we'll set that up (garble) that. We'll go ahead and a few minutes before switch the voice recorder to Channel A and then just go ahead and press that hard mike Channel A.

CC Roger. Very good. We concur.

SC Well, I haven't looked at the EREP operating status. It's my assumption we will operate all experiments today even though they may subsequently turn out to be in a degraded mode.

CC That's affirmative.

SC Say, Hank. Can you find out whether we're going to dump the waste tank any more or not.

CC CDR, Houston. EGIL assures us that this should be the last dump.

SC Okay.

SC Well, I knew we were going to have to dump them one more time. I didn't think it (garble) like that said.

CC Roger.

SL-II MC-299/2
Time: 12:45 p.m. CDT, 6:17:45 GET
5/30/73

CC — CDR, Houston. The reason we're - we've filled up a little faster than we expected. As you recall, we had to put that other inverter on the line. So, we're pulling a few more amps than we had anticipated. And we need that inverter to keep the water glycol up. Right at 10.

SC — Okay. No sweat.

PAO — Skylab Control, Houston; 17 hours 56 minutes Greenwich mean time. Less than 2 minutes remaining on this pass over Ascension.

CC — Skylab, Houston. We're about 1 minute from LOS; Carnarvon, at 20.

SC — Roger.

PAO — Skylab, Control, Houston; 17 hours 58 minutes Greenwich mean time. We've had loss of signal now with Ascension. The next station to acquire will be Carnarvon in approximately 22 minutes. During our Ascension pass, Pilot Paul Weitz, continuing to trouble shoot the UV stellar astronomy equipment, which he now has inside. Also, Weitz made a proposal to mission control regarding the U.S. passes. That would be to switch their voice descriptions to Channel A vs Channel B. Giving live voice data. The EREP pass is essentially over the west and southwestern parts of the Unites States. The passes scheduled to occur between 20 hours 35 minutes Greenwich mean time and 20 hours 58 minutes Greenwich mean time. For this first EREP pass, this will require an attitude change, moving Skylab from a solar inertial attitude to an attitude watching the rotation of the earth below, so cameras and sensors can remain fixed onto the earth's surface. 25 separate sites are identified for this first EREP pass, which follows ground track 20 from the coast of Oregon across western Nevada, Utah, Arizona, New Mexico, Texas, the Gulf of Mexico, Central America, Columbia. We show approximately 20 minutes until we acquire Skylab again over Carnarvon. And at 1800 hours Greenwich mean time, this is Skylab Control, Houston.

END OF TAPE

SL-II-MCC00/1
Time: 1:18 p.m. CDT, 6:18:18 GET
5/30/73

PAO Skylab Control, Houston, at 18 hours 18 minutes Greenwich mean time; approaching acquisition now with Carnarvon. The ambient cabin temperature in the orbital workshop now reading 84.7 degrees. This temperature plot - the temperature plot continuing to show a trend to drop at night during the crew rest period. About a 3-degree drop last night. And the temperature tends to remain essentially stable during the daytime periods when the crew is up and active. We're about a minute away now from acquisition with Carnarvon. We'll stand by and monitor the callup from CAP COM Henry Hartsfield.

PAO Skylab Control, Houston. Now receiving data through Carnarvon.

CC Skylab, Houston through Carnarvon for 10 minutes.

SC Hank, I've got a few words on S019.

CC Go ahead.

SC Houston, SPT. You're going to tell me when you're ready, right?

CC Talking about the S054 powerup, Joe?

SC Yes.

CC Okay. We're looking at it. We'll give you a go when we're ready.

SC Thank you. Hank, you want a few words on S019?

CC Roger. Go ahead.

SC Okay. We pulled it in. Extended it inside. We got the rotation freed up. It runs fairly free. It hangs up as though there is a burr or something, and I tell you, we're suspicious that it may be the degrees counter, because it does it every degree, not full degrees - between - the 0.5 and 0.6 part, but it does it once every degree indicated there. The (garble) is - appears to be completely frozen. We can't get it to turn regardless of where we get a hold of that drive mechanism.

PAO A training model of the S019 equipment -

CC Station won't turn at all. And say again about the tilt.

SC I'm thinking. Wait a minute. Rotation - now the rotation knob works. It's freed up, and it works. And that's the one that hangs up every degree, once a degree. The tilt arm is the one that we cannot get to move at all. The crank handle turns, but, as I remember, there is a foot clutch in those handles, and we think that it's just - that's what we're turning. And in regard to where we get a hold of that drive mechanism inside the box, we can't get it to turn. It is really frozen solid at tilt.

SL-1I MC300/2
Time: 1:18 p.m. CDT, 6/18:18 GET
5/30/73

CC Okay, we got one sitting right here, and we almost duplicated this thing, I think, by jamming up the drive somewhere.

SC Yeah, well we can try anything.

SC Hank, that's exactly what I think happened. I think there was a burr or something like that, and in zero-g it floated into that little (garble) gear chain somewhere, but the question is where?

CC Well, that may be a problem. We jammed it with a pencil, and we got about the same thing that you had described.

SC Well, I'm convinced that that's what it is. I'm also convinced that's what's in the tilt mechanism. It's probably a little burr up in the gear drive that goes to the number of degrees counter, and we're just clicking over that one about - is it stuck on some gear, you know, and it comes up in a nice ratio. But the other one - there's got to be a burr or a piece of dirt or grit. It's one of those five gears that drives that thing in tilt. Also be advised that I'm standing by to do your CRBM thing any time.

CC Okay, we're ready any time, Pete.

PAO A training model of the S019 equipment has been brought into the Mission Operations Control Room from the Corollary Staff Support Room, where it has been diagnosed previously.

CC Paul, we ran the mirror assembly out all the way, and if you're looking forward along the device and on the left side, there is a little drive gear exposed. And when we jammed that, we got these bind-ups. When it would finally break loose, it would act about every degree, just like you described.

SC That sounds very much like it. It was very tough. We just finally had nothing to lose, and now it's working fairly freely now. I get confident that it could work; however, the binding in the tilt - we can't move that at all. I think the rotation's quite usable now.

CC Okay.

CC PLT, Houston. Did you take off the optical canister and take a look into the gear box there in the PMS.

SC That's affirm. Sure did.

SC Hey, Hank. I'm on the bicycle right now and a little unscheduled trying to make up for what I did this morning. Do we get a raise today sometime when I can be - maybe we can both be looking at this thing talkmarking at the same time, or I can get off the bike right now and look at it, if you want.

CC Oh, no. Go ahead, and then we'll think about it a little more and get with you later.

SC Okay.

CC CDR, Houston. We gave you a bad call on that CSRM. We've got to wait for the daylight before we can check that out.

SC Roger. He had just noticed that and secured doing the operation for that reason. And are you ready for S054 yet?

CC Joe, we're still having this same data problem. We'd like to delay now until Guam and - so we can get some good data.

SC Okay.

CC And from LOS now. Guam will be coming up in 33.

PAO That last callup - Henry Hartsfield talking to Joe Kerwin, who is now manning the position controlling the Apollo telescope mount activity. We're less than a minute away now fror loss of signal through Carnarvon.

PAO Skylab Control, Houston; 18 hours 31 minutes Greenwich mean time. We've just had loss of signal with Carnarvon. The next station to acquire is Guam in just over 2 minutes.

END OF TAPE

PAO Skylab Control, Houston, 18 hours 33 minutes Greenwich mean time. We are acquiring data now through Guam tracking.

CC Skylab, Houston, through Guam for 9-1/2 minutes and SPT we're GO for S054 power up.

SPT Okay, be with you in a minute.

PAO That call-up from Henry Hartsfield to Joe Kerwin who is managing the Apollo telescope mount display and control console, SO-54, the X-Ray spectrographic telescope experiment.

SPT Okay, Houston. The (garble) switches are ON.

CC Rog, copy.

SPT Houston, SPT. About the only thing we see that's the least bit off nominal is that the PMEC count is tends to go over 200. Its cycle is as high as 400 orso. It averages around 100 or a little less.

CC Roger, we copy.

CC SPT, the 54 high voltage looks good to us.

SPT Okay, thank you.

PAO Joe Kerwin in the process of powering up the X-Ray spectrographic telescope experiment.

PAO About 7 minutes remaining on this pass of Skylab over Guam.

SPT Houston. When is SO-56 going to follow us through?

CC Okay, we're standing by now, Joe.

SPT Okay.

CC You are standing by - you are indicating the X-REA weren't you Joe?

SPT Yes sir, I was.

CC Okay, we're still waiting on that pres ure thing and we don't know when that's going to happen and everybody's happy with it.

SPT All right.

SPT And Pete's ready to do the CBRM stuff if you're ready for him.

CC Okay, we're ready.

CDR Okay, it was right Houston, no draw on any of them.

CC Roger, copy.

PAO Skylab Control, Houston, 18 hours 40 minutes Greenwich mean time. That was Pete Conrad going through a malfunction procedure, trying to bring battery 15 back on the line, unsuccessful at this point in a malfunction procedure. We've got about 3 minutes remaining on this pass over Guam and this

SL-II MC-[illegible]
Time: 13:33 CDT, 6:18:33 GMT
5/30/73

is Skylab Control, Houston.

CC CDR, Houston. Because of the way our telemetry updates down here we'd just like to verify that you did cycle this thing five times.

CDR Yes sir, I did.

CC Okay, thank you sir.

CC Skylab, Houston. We're about 20 seconds from LOS coming up at Goldstone at 59.

SPT Roger.

PAO Skylab Control, Houston at 18 hours 44 minutes Greenwich mean time. We've had loss of signal now with Skylab through Guam. The next station to acquire is Goldstone at approximately 15 minutes. During this pass the Commander Pete Conrad tried unsuccessfully some malfunction procedure tests, the CBRM test to try and bring battery 15 back on the line, unsuccessfully as it turns out. Also, in the mission control center continuing to trouble shoot with a training version of the SO-19 equipment. We're at 18 hours 44 minutes Greenwich mean time and this is Skylab Control, Houston.

END OF TAPE

SL-1X MO-302/1
Time: 13:57 GMT 08:10:57 GMT
5/30/73

PAO: This is Skylab Control, 13:57 Greenwich mean time. A minute and a half out of Goldstone for a fairly solid stateside pass, crossing the Washington coast, coming out around Jacksonville, Florida, on the Atlantic coast. During this pass the vidio tape recorder on board Skylab will be dumping previously taken television scenes, and they will be played back as received. Transmitted as received along the television release circuit. They're not - as opposed to live television - these are VTR real-time playbacks, if that is clear. Standing by for AOS Goldstone, Skylab Control.

CC And Skylab, for info, we'll be dumping the data recorder on the latter part of this pass over Bermuda at about 08.

END OF TAPE

CC [illegible] Skylab, Houston for the PLT, info only, no response required. We've got an update on the weather for a couple of your sites. Site 125, Smoke Creek is now point 8 cloud coverage. And 320, White Sands is up to 0.4 now. And for the CDR, looks like we may get a run at Indy, they've started the engines. I think the weather is finally starting to cooperate.

CDR Thank you, Hank, and be advised, we're on A RECORD now.

CC Roger. Copy.

CC Skylab, Houston. We're a little over 10 seconds on LOS. We'll be coming up on Carnarvon at 59, at the end of the first lap Mark Donahue is in the lead.

PAO This is Skylab Control. We've had a loss of signal through the Bermuda station. Next station Carnarvon in 40 minutes. The crew rather quiet during that stateside pass as they get prepared for the upcoming Earth Resources pass, on the next stateside run. At 19:17 Greenwich mean time, Skylab Control.

END OF TAPE

FAO This is Skylab Control, 1 hour, as
ou were, 1 minute and 10 seconds out of Carnarvon. 19:57
reenwich mean time. Skylab space station midway through
evolution number 233. Carnarvon, with a brief gap over
rough Guam. Next stateside pass will be the first Earth
esources experiment package run of the mission. Arcking
own across the western United States from the Oregon
oast out near Brownsville into the Gulf of Mexico.
ould have acquisition now. We'll wait for resumption of
ommunications with the crew.

CC Six minutes.

CDR Roger. How do you read, Houston?

CC Roger. Reading you loud and clear.

CDR Okay, this is VOX from the
RLP station. We just want to check the COMM. As would
, 7 minutes of daylight left to go. We got a flare, the
MEC hit 960. The SPT did an outstanding job of running
minutes worth of flare, and of cou[illegible] our next pass is
REP. Couldn't of come at a worst t[illegible], right?

CC Rog.

SPT Houston, SPT.

CC Go ahead.

SPT Okay, I had a possible malfunction on
055, I want to pass on to you. When in MIRROR LINE SCAN,
RATING (garb le) zeros all detectors, it tripped out, with the
CAN SPEC light. One of the detectors tripped it out about
ree or four times. I'm not dead sure which one it was,
it when I ran it with detectors 5 and 6 off the line,
stayed put. It was okay. Maybe your people can look
their data on that. On the flare, the flare appeared
be in active region 14, which was where I was headed
the moment, and so we did get a couple of minutes of
lare rise. The PMEC count on board, Pete did about 960
just about saturated and was well into flare fall by
e time sunset came.

CC Roger. Copy.

SC - lights. They're all hot.

CC Do you have a time for that, SPT?

SPT We got the alarm at about 7
nutes and 30 seconds daytime remaining. I didn't noticed
e GMT, but you can figure it out.

CC Roger. We'll do it from there.

CC And Skylab for the CDR. In lap 43
ordy Johncock was in the lead, and Benny Vukovich second.
obby Unser is in the pits for gas. A.J. is out of the
ace. His car is being rolled by hand into the pits.

CDR What happened to Mark Donahue?

CC I didn't get the word on him yet.

SL-II MC-304/2
Time: 14:57 CDT 06:19:57 GMT
5/30/73

CDR — Want to do this alignment?
PLT — Hello, Houston. How do you read the PLT VOX?
CC — Roger. Reading you loud and clear.
PLT — Okay. (garble)
SPT — Did you tell them about those 190 MALF lights (garble)
PLT — No, I didn't. On the tape on A record I did - We had a different thing with S190. When I did the four-frame advance, I only had three MALF lights, 3, 5, and 6. However a couple of magazines, not necessarily 3, 5, and 6, indicated 5 frames advance rather than 4, and we think that's just because you can get half frame setup on that counter. We only heard the camera go four times. So that's a little different status on the S190. I don't think the 5 frame thing is signigicant.
CC — Skylab, Houston. We see that you forgot to ENABLE the MOMENTUM DUMP before this last dark, so you can expect some TACS firings here.
CC — And you might want to INHIBIT the CMG SATS to avoid a master alarm during the EREP.
CDR — Roger.
PLT — Got too excited about your flare. (laughter)
PLT — Say, Hank, give me that report you had on cloud over the sites again. Will you please?
CC — Roger. We had an update on Site 125, Smoke CreeK is up to 0.8 now, and White Sands, site 320 is up to 0.4 cloud coverage.
PLT — Yippee. How about 125, the primary descending site is Black Rock Desert. I assume that if I can find them, you'll take either one, right?
CC — That's affirmative, and we're about 30 seconds from LOS. Guam will be coming up at 13.
PLT — Well, that was my fault. We had all remembered to remind each other what we're enabling. Don't we just leave it on annotated?
PLT — Okay.
PLT — We don't have to get on the defensive quite this fast, you know it?
CDR — Right?
PLT — Yes. (garble) configuration right.
PAO — This is Skylab Control. We have a gap here between Carnarvon and Guam. Final passes of the day over those two stations. About 5 minutes still to go to Guam. We'll leave the circuit up. It was reported during the Carnarvon pass, that while the Science Pilot Joe Kerwin was standing by to assist the ground in maneuvering

the Skylab space station into the so-called Z-local Vertical that is, where the axis of the spacecraft was oriented at right angles to the surface of the Earth, as opposed to toward the Sun constantly. In other words, the Earth Resources Experiment instruments looked directly down at the Earth, a solar flare claim was detected by some of the astronomical instruments in the telescope mount. And he went through some description of how the solar flare appeared to him, and its duration. But at this time the space station is in preparation for going to Z-local vertical attitude for the up-coming Earth Resources pass over the continental United States. There was some discussion of cloud cover and some of the desired sites on the ground, which will be covered, scanned, photographed during the Earth Resources pass. 3-1/2 minutes to Guam. Standing by for the Guam pass, Skylab Control.

END OF TAPE

CDR - three percent. Charlie five reads 84 percent, Charlie 6 reads 46 percent, Delta 4 reads 73 percent, Delta 5 reads 14 percent.

CC Skylab, Houston. I'm reading you through Guam for about 5 minutes. And SPT we suggest you to go ahead and ENABLE the MOMENTUM DUMP.

SPT Okay, Houston.

PLT In 5 minutes we're - we'll be T minus 10 there.

PLT That's yours though right?

PLT I sat over on my side. (Laughter)

CDR And Houston, I've gotten all the readings and they're on A RECORD.

CC Copy.

CDR On time that's 19:50.

SPT Here, Houston?

CC Skylab, Houston. Were you calling?

SPT Yeah Hank. Hey when - when is the earliest I can do the S-192 alignment? Pete turned the S-192 power on time at 19:50.

CC Stand by one.

SPT Okay.

PLT Look in the - in the systems checklist. It's got the configuration in it.

CDR Have we started the maneuver jump?

CC Skylab, Houston. You're GO on the 190 check - 192 check.

SPT Okay, I thought I should have really waited a 30-minute period on the cool down on that. I'll go ahead and do it. How about sometime later on today, give me a reading on that, will you, Hank, when I can do it? And - -

CC Okay, the word we got was 17 minutes after a warm-up start or cool-down I guess.

PLT Hank, also I have the door switch OPEN and I have yet to get a READY light on 192, but I think he followed that problem yesterday, right?

CC That's affirmative.

CC Okay, we're just about LOS through Goldstone at 36.

SPT Never mind. I understand.

SPT Yeah, I see. I got it. I didn't read the check list.

PAO This is Skylab Control, 20:20 Greenwich mean time, 15 minutes to Goldstone and the start of the first Earth resources survey pass of the Skylab mission. 20:20 back in 15 minutes, Skylab Control.

END OF TAPE

CDR - four, three, two, one - MARK AUTO CAL.
PLT (Garble) I got no ready light to go by.
CC Houston, monitoring.
PLT Good.
CDR 94 to MANUAL
PLT It hasn't come up (Garble) and I think that you ought to reject it.
CDR Okay. Going to STANDBY. Yeah (garble)
CDR And going back ON (garble) READY OUT - -
SPT Houston, we're on singl. gyro on (garble) You might want to look at that.
CDR (garble) up again. God damn it.
PLT (Garble) do you have?
CDR The decision point was 3644. I blew it.
SPT That's not here yet.
CDR I know, but I went to standby because you said reject it. That started it all over again. Right?
PLT (garble)
PLT I guess I (garble) he decision point. I'm sorry. It's a coast.
CDR No it's - it went back to it's preset 1 and it's doing fine.
PLT That's fine.
CDR It's 90 percent (garble) 90.
PLT Well, then leave it there I don't understand it.
SPT I don't either.
CDR A-1 is 45 percent and B-1 is 45 percent.
PLT (Garble) coast at 37. Do you see it?
CDR Yeah, I (garble) something on the altimeter though.
PLT Okay.
CDR I don't know what it meant to go to stardby when you told me too.
PLT I didn't tell - okay.
CDR Well, you know - reject.
PLT So you think there's only eight-tenths coverage around (garble) huh Hank?
CC That's what they tell me.
CDR Okay, mode 13745 is (garble)
CDR And we've got the READY ON and - -

SL-II MC-306/2
Time: 15:35 CDT, 6:20:35 GMT
5/30/73

CDR Ready - 806 A, YIELD MODE AUTO on 19.
PLT We've found it, how about that.
PLT (Garble) lookin through a little hole in the clouds.
PLT What did you find?
PLT I found my site. Okay, on that (garble) Very good. This thing tracks very nicely it's smoother than the simulator.
CDR Okay, 52 there's MODE AUTO on 90 and trim track contiguous - (garble) on 193 A at 3126 getting an intermittent ALTIMETER UNLOCK light. I have (garble) on 3, 5, and 6 on S-190. (Garble)? I have - still have an intermittent ALTIMETER UNCLOCK light on 190.
PLT Okay. I got - -
CDR Okay, I noticed when switching 92 on, I had a flashing RECORDER MALF light as it shifted into high gear, but I think that's normal. Still have an intermittent ALTIMETER UNLOCK light on S190.
SPT And the one I got there was of (garble) Smoke desert on that, Hank.
CC Roger.
CDR And I'm standing by for 4126 or a 193 READY OUT and then 41 - -
CDR The READY light still didn't go out. Stand by. (Garble) ON and 38 red ON
CDR 136 is the next one. And I do not have a READY light on GAT and GAT X-MITTER light
CDR (Garble) OFF
PLT No, only the yellow ones. Okay.
CDR Okay, we got a SCAT X-MITTER light
PLT Okay, on the white sands and tracking.
CDR GET's on STANDBY on 36 RED to STANDBY at 38 -
CDR Okay (garble) 4336

END OF TAPE

SL-II MC-307/1
Time: 15:43 CDT 06:20:43 GMT
5/30/73

CDR Okay, standing by for 43:36.
PLT MARK. SCAT ON. RAD ON. MODE 2 on the altimeter. (garble)
CC Paul, your special target is water.
PLT I get a RAD/SCAT gimble light occasionally. I still have a SCAT X-MITTER warning light on. And the next think I'm waiting for -
PLT (garble)
PLT (Garbeled) It's too late now. We should have shot those Corpus Christi sites (garble).
PLT I was going to look for them but they snuck up on me.
PLT Dag nab it.
CDR (garble) the light went out on time, 4609. SCATs in STANDBY. Add F193 36. 93A ON. 91 power OFF.
PLT Wait a minute. (garble) okay. You got them. Nevermind.
CDR Stand by.
PLT 191 has to be back on in about 10 seconds
CDR MARK. It's on.
PLT Okay.
PLT Hey, there's Salt Lake Desert (Garbled). It's pretty much in the clear, Houston. We're going to get your data back to you. (Garbled) we're tracking over now.
CC Roger.
PLT (Garbled) Pretty good shape.
CC Copy.
CDR 5 -
PLT Dag nab it, we should have tried for those Corpus sites though.
CDR 35 - check - S190 (garble) on.
CDR Now, we're (garble)
PLT For your information, Houston,(garbled) forward gimble's (Garbled) at which point I can see just a little bit of -
PLT Okay, that's it.
CDR What, what, what, that's not it for me, man, I gotta go until 03.
CC Skylab, while you got a break here, I want to point out that the housekeeping that's called out for the CDR and SPT coming up here shortly is the pole procedure, which we uplinked, and Rusty will be standing by at Vanguard, for any questions you may have on that.
CDR Okay.
CC And in case you get to doing something here again, I'll tell you now that we're about 2-1/2 minutes

from LOS. And Vanguard will be coming up at 01, and we're scheduled for a recorder dump.

CDR — Okay.

PLT — Roger Hank. Did you get my call about the RATE GYRO?

CC — That's affirmative and ASCO's looking at it.

PLT — Okay. And we have a BATTERY CHARGE light ON. CBRM number 5.

CC — CDR, Houston. Could you give us a ready lights status.

CDR — You want the ready lights status?

CC — Affirmative.

CDR — TAPE RECORDER READY light is on, and 192 READY LIGHT is out. 191 READY light is out. 190 READY light is out. The RAD READY light is out. The SCAT READY light is out. The OUT READY light is out, and the 194 READY light is on.

CC — Copy.

PLT — (garbled)

CC — Understand. No (garble)

PLT — It's ready, it searched all the way around the box. All the way around the edges, and (garbled) It was sitting at about 35. They were bunched.

CDR — But I don't think we timed out right. I think we were a little premature, so I'd like to run it again. I shut it off too soon.

PLT — Well, maybe so, but I still think it went all the way around once.

PLT — It may have.

PLT — (garble) close the door,---

CC — SPT, we're coming up on LOS, we'd like to enable 1 and 3 GYROS and go back to RATE GYRO (garbled) E NABLE.

SPT — Roger. Okay to do that during the maneuver?

CC — Affirmative.

SPT — Okay.

CC — SPT, we'd like that now, before we start back to solar inertial.

PLT — Okay --

PAO — This is Skylab Control. Loss of signal through the Mila tracking station. Nine minutes to Vanguard. Completion of the first Skylab Earth Resources Survey pass track number 20 over the continental United States. The crew came up on Goldstone, already in the voice actuated

SL-II MC-307/3
Time: 19:43 CST 06:20:43 GMT
5/30/73

communications mode, and where everything they said was relayed to the ground. They commented that the tracking with the EREP equipment was smoother than in the ground simulator. And as they operated the S190A multispectral camera array, they mentioned the completion of the photographs of the Salt Lake Desert. And coming across the Gulf Coast, they expressed a wish that they had scheduled in the Corpus Christi site, because of the clear atmosphere over that location. Skylab space station will be going back to solar inertial attitude now that the Earth Resources pass is complete. Vanguard in 7 minutes. At 20:54 Skylab Control.

END OF TAPE

SL-II MC-308/1
Time: 15:59 CDT, 6:20:59 GMT
5/30/73

PAO This is Skylab Control 21:00 Greenwich mean time, one minute theoretically from acquisition at Vanguard, perhaps a little sooner. First Vanguard pass of the afternoon. Standing by at Vanguard, Skylab Control.

CC Skylab, Houston through Vanguard for 9 minutes.

CDR Roger, Houston. I have a question. The tape recorder usage shows about only 56 percent remaining and we checked the tape recorder visually and there's only about an inch left to fill on the spool. So, we're going to measure it and give you the exact amount and we'll run it out to depletion.

CC Roger. good show.

CC And SPT the BAT CHARGE light you had was expected. All 17 CBRM's should be feeding that.

SPT Okay, when it first came up - that was number 6 - that's probably the first one - was the first one to show up.

CC Roger.

CC SPT, Houston. We believe that the flare you had earlier was a South Atlantic Anomaly and if you need to disable the tone light - -

PLT The laughter is going out hot.

CC CDR, Houston. The 190 malf lifht you reported on 3, 5, and 6, were they ON on the last sequence?

CDR No, I put it on tape - I think we were out of contact. I only had MALF light number 5 on when I restarted it this last time and so we lost 3 and 6 - so everything now is normal - 1, 2, 3, 4, and 6.

CC Roger, copy.

CDR And we'll give you the depth of tape. One and a quarter inch is left on the take-up reel and we'll go ahead and run her out now.

CC Okay, copy. One and one-quarter inches.

CDR Yeah, I don't have that anywhere. Yeah.

CDR Yeah, I'll do that in just a second.

SPT Oh, heavens. I gotta do an S-191 AUTO CAL. I turned that off.

CC SPT, Houston. We believe that we see the same Y-axis gyro problem we had earlier and we would like for you to re-enable after you get back to solar inertial.

SPT It's right here.

SPT Okay, are you gonna change the drift compensation of one or more of those gyros?

SPT I just don't know how long it takes you to figure that out.

CC We'll have to get back to solar inertial Joe, so we can get some more drift checks.
SPT I got you.
SPT That flare thing was a good lesson, Houston. The anomaly was on the pad and I ignored it because we had the X-Ray and (garble) analyzer POWER DOWN. And gol-darned if we didn't see the flare in XUV. (Laughter)
CC Roger.
SPT We did not see anything in X-Ray however.
CC Copy.
CDR Okay, friendly tape recorder on the AUTO CAL A-7 reads 80 percent. And A-8 reads 85 percent.
CC SPT and CDR this is Houston. When you go into the probe procedure here, we've got about 8 minutes of VTR available for you. If you find something very interesting to put on it. Over.
CDR Okay. Yeah, Rusty I haven't had a chance to even read that procedure at all. Period. So, I'm going to be starting from POO with that.
CC Okay, unfortunately you're gonna be through T-99 before we pick you up again at Goldstone.
CDR Well, that's okay. We need a chance to cool it, we've been hustling all day.
CC Rog.
CDR Yeah, but I guess we really ought to verify this MALF-5 here - make sure we took all the frames that we were supposed to have taken, huh?
SPT Yeah.
CDR Well, I don't know how many frames it was. Let me get rid of the tape recorder first. (Garble)
CC SPT, Houston. We're coming up on LOS about one minute and we'll be along LOS picking up Vanguard - or Goldstone at 13 and we're not getting the ATM panel closed out for unattended ops properly and we would like for you to do that in accordance with pages Charlie 3, Charlie 4, Charlie 5, of the ATM checklist and data book and we will get something up to you shortly to get your cue card corrected.
PAO This is Skylab Control. Skylab space station has passed out of range of the tracking ship Vanguard at the outset of Earth revolution number 234. Early in the Vanguard pass the spacecraft communicator Hank Hartsfield passed up to the crew the belief that the people on the ground who had been monitoring the ATM telescope mount instrument activity believed that the earlier reported solar flare was actually an alarm tripped by the so-called South Atlantic Anomaly, which is a region of trapped ion particles in the space above the Earth between

South America and Africa. This opinion drew chuckles from the crew onboard Skylab. Skylab was in the midst of maneuvering back to solar inertial attitude during the Vanguard pass, going back to solar inertial after having been in Earth-looking attitude or what as known as Z-local-vertical for the state-side Earth Resources survey. The old Y-axis gyro - rate gyro problem has cropped up again apparently. The crew will re-enable the system after they've returned all the way back to solar inertial attitude. Next station is Goldstone, final Goldstone pass of the evening in one hour. 21:13 Greenwich mean time, Skylab Control.

END OF TAPE

PAO [illegible] This is Skylab Control; 22:12 Greenwich mean time. A minute out from the final Goldstone Tracking Station pass of the evening. During the end of revolution 234. Standing by for air-ground; total 8 minutes across Goldstone.

CC Skylab, Houston through Goldstone for 11 minutes.

SC Hi there. We just - Pete is ready to talk to you about the film.

CC Okay, go ahead.

CC Before we talk probe, I got one message for the SPT. We'll swap him one checklist boo-boo for an SAA flare. The poop we gave him a while ago was incorrect. The checklist and the cue card are totally in agreement; so we don't know what happened there.

SC Roger. Henry, I went through the checklist and noted that it still had all the things about shutting off rate-gyros and fine Sun sensors; so I just arbitrarily crossed them out. Is that okay?

CC That's okay. And for the CDR, quick update on the ND. At the end of lap 94, the sky was getting very dark; Johncock was in the lead, Lukevitch second, Bobby Onser third, Johncock was turning the track at a rate of 182.9.

SC Very good. Did you ever find out what happened to Mike Dunahue?

CC I still don't have that, Pete.

SC Okay, let me tell you about the probe. Let me get down to the wardroom where I can read. I'll be right with you.

SC Okay, let me go back to the way we found the probe when we took it out the very first time in the command module.

CC Okay, we're listening, Pete.

SC Yeah, I'm trying to get a speaker shut off where it's squealing.

SC Okay, the status of the probe - and we kind of put it back together again after reading your thing over - was two latches made and one trigger not made, with the capture latch button tilted slightly, but not all the way extended, to give latch. Okay, now we read through all your procedures all the way through to step 14. And we could find nothing wrong. And at 14A, we did it 10 times to verify it, except as we were doing 9 one time with our hands, we got the same hangup that we noted when we brought the probe in the first time. However, using the probe and going through step 14A 10 times, we could not get the problem to repeat itself. And

so we have stopped there, assuming that we could get off all right and also assuming that you have enough information to go on. Because whatever is hanging it up, when it does it on occasion, is nonrepeatable, and there is no notable outside discrepancies in dimensions or anything like that. Now does that make sense with any kind of failure hangup that you could think of?

CC Okay, Pete, let me understand for sure what you said. Understand you went through the normal procedure for capture in the drogue, and it worked essentially nine times out of 10. And on one time, it did hang up the way you reported before, but other than that, it locked in all by itself.

SC That's not quite true, Rusty. On step 9 of your procedure, you have us doing the capture latches simultaneously with our exchangers or whatever we can. We've got to hang up one prime vent. Now realize that when you do it with your fingers, if you do them simultaneously, they all go easy. If you get a little out of sync, the last one will go very hard; but this was different to that. It very definitely - the trigger was free, but the button was caught and stuck somewhere between set and fully extend, if you follow me Now with the probe and the drogue, we never could get it to repeat. Okay? But doing it with our hands that one time in your step 9, that came up with exactly the same configuration we found the probe in when we took it out of the drogue - the real time.

CC Okay. I guess we're going to have to digest this, Pete, and I think for the present time what you're saying is that you feel that when you cock it and put it into the drogue, that you can get it reliably to lock, at least realiably enough to press on from there and free load it and do a normal-on dock. Is that correct?

SC Yeah. Let me say that it looks like one trigger, possibly, can go all the way in and not trip its portion of that locking mechanism. And when the thing is feeding completely in the probe, that one latch is not made, and it won't make, because the button is now hung up or the slider rod - or the - that the buttons on the end of, the capture latch button. Now does that make sense to you? Because I hope I'm explaining it right, but that appeared to me to be what the trouble is. As far as us getting off -

CC Pete, you still there?

CC Skylab, Houston. You still there?

SC Yeah, do you read?

CC Okay, fine. We dropped out there on a handover between Goldstone and Texas. We have a good picture of what you said, Pete. I think we have a good mental image of it. Let me just say one thing. When you cock it for

installation in the drogue, you get more force to pull the spider forward to the lock position if you use the capture-latch release button on the front end of the probe rather than the handle - the cocking handle on the back end. You have a slightly greater spring force pulling it forward. You might want to just try that 10 times, using the probe end; that is, cock the latches from the front, leaving the handle in the back in the lock position. And try that one.

SC Yeah, that's the way we did it, Rusty. That's according to your procedures. We were setting the capture-latch lock mechanism by using the front button.

CC Okay, if you go on then to use the - to put the handle on the back, you might want to check it there because it is a little weaker. I would suggest that if you have to undock, you use the capture-latch release button on the front to cock it, leaving the handle on the back in the lock position. And it looks like that'll work fine, and we'll get back to you, Pete.

SC Understand that, Rusty, and we can do that real -

END OF TAPE

SL-II MC-310/2
Time: 5:22 p.m. CDT, 06:22:22 GET
5/30/73

PAO This Skylab Control, Skylab space station has gone over the hill from the Goldstone and Texas site for the final stateside pass of the day. Fourteen minutes now out of the Vanguard Tracking ship. Pete Conrad, during the just completed pass, described the progress in troubleshooting the docking probe problem that they encountered during the attempts to redock on launch day. They never could get the problem to repeat itself with both the probe and drogue. And one of this final comments, after describing the procedure they had followed, was that we're happy with it, and we think we can undocked with it okay. We have several statements on today's science activity in the Skylab mission. On Earth resources, general science experiments and the Apollo telescope mount experiment. The first is from Frank Littleton of the Johnson Space Center, Skylab Program Office, who says, "The mission is progressing well as we proceed through the 6th day of manned activities. This 6th mission day has seen the first Earth resources pass, with data taken over the western part of the cortinental United States. This is the first day and the level of experiment operation activity has close to that expected in premission planning. The electrical power shortages are causing regular adjustments in flight planning in order to provide optimum experiment results. This activity will continue; nowever, the loss of any major Skylab objectives because of electrical power shortages is not forecast at this time. Expanding further on today's earth resources pass, Charles K. Williams, who is manager of the Earth Resources Experiment package, engineering and technical integration office at Johnson Space Center said the following. "It was planned to initiate data take at 145° west longitude in an attempt to obtain S193 data over the Northern Pacific, Oregon Coast Contact. Because, of changing weather conditions resulting in 80 percent cloud cover extending 300 miles inland, this activity was not started until the pass became feet dry, that is no cloud cover." The Great Salt Lake Desert was essentially cloud free and observed by the crew. Under the track, an EREP test site was the White Sands Gypsum Beds. Additional information was obtained over Lake Tahl (?), Utah. Photographic, radiometric, and multispectral scanning data were collected over various types of clouds for the applications of improving the understanding of cloud dynamics, which is a factor in weather forecasting. Data collected over the southern Rio Grande Valley, of Texas will potentially result and an improved understanding of soil salinity. One of the six S190 cameras indicated a malfunction. It's significance and the overall success of the pass is being assessed. Program Scientist Bob Parker, had the following statement. "A number of semi-passes, nuclear particle collection instruments S009, S228, ED76 have been deployed so far in the mission and

they continue to accumulate their data. The first of the scientific airlock experiments to be activated, was the ultraviolet stellar telescope, S019. During its initial use today, however, troubles were discovered over its articulate mirror system, which allows the telescope to look in different directions. The equipment has now been brought back into the workshop and after some troubleshooting examination by the crew, work is proceeding on the ground in an effort to find a procedure to correct an apparently jammed gear train. Hopes are high that a fix can be found in time to allow observations during 2 runs that are still scheduled for tomorrow. In the solar astronomy field, Bill Keathley of Marshall Space Flight Center, who is the ATM Project Manager, had the following observation. Today, the ATM instruments continued to collect data during observations of active regions 18, 17, and 14, as well, as filament number 62. Synoptic observations were also obtained. In an addition the S054 X-ray photo multiplier was successfully activated and checked out. Excellent television down link images of the solar corona, solar disk and the line of E-alpha, and the solar disk in extreme ultraviolet were obtained this morning. 3 minutes from Vanguard at 22:31, Skylab Control.

END OF TAPE

SL-1I MCC11/1
Time: 5:38 p.m. CDT, 6:22:38 GMT
5/30/73

PAO This is Skylab Control; 22:38 Greenwich mean time. We're in acquisition at tracking ship Vanguard.
SC (garble)
CC CDR, Houston.
SC Go ahead.
CC Okay. Could you do a little chore for us? We'd like to get REG 6, 7, 8, and 16 off. The reason for this, they went AUTO OFF during the EREP run, and we're in the dark now and didn't get enough charge on them. They're just going to do it again. So we'd like to go ahead and turn them off.
SC Okay, wait a minute. REGs what?
CC Six, 7, 8, and 16.
SC Okay, REGs 6, 7, 8, and 16, OFF.
SC Hey, Hank, I (garble). At least I don't get a light on 6. I got 7, 8, and 16 OFF, by the light. But I don't have a light on 6.
CC Roger. Copy. We'll take a look at it. And also, for information, we're going to be powering down the EPC to conserve power.
SC (garble)
CC And we'll also be turning down the airlock module's secondary coolant loop.
SC Okay. What'll we do, Ron? Watch for it in (garble)?
CC Negative. I think we went just about where we expected to. But a few of their BATs went down, sort of border line there, on the auto cutoff.
SC (garble)
SC Yeah. I see (garble)
CC Pete, would you say your last again? We had a dropout in voice there over Vanguard.
SC I saw a REG FIX light come on, and then it went off again, all by itself. Did you guys command that from the ground?
CC Okay, EGIL's trying to turn it off, but it looks like it won't stay off. EGIL's going to command now, Pete.
SC Okay. Have the light on now.
CC Pete, the (garble) over now. It got rain - stopped by rain somewhere in 130 something laps, and Gordy Johncock was the winner.
SC Very good.
CC He averaged some 159 plus, I think, was the verage for the race.
SC Okay.
SC Okay, it looks like that REG went back on again by itself.

SL-II MC311/2
Time: 5:38 p.m. CDT, 6:22:38 GMT
5/30/73

CC KGIL's watching it, Pete.
SC Okay, other (garble) at the (garble) 131. I'm going into the command module and refill a couple of things, - like you need me.
CC Okay.
CC And, Skylab; info, no response required. We also turned the star tracker off.
CC Skylab, Houston. We'd like to hold up on the M131 run until we get back into daylight. And that's about 30 minutes from now.
SC What for, Hank? We're half way through the OGI mode now.
CC Well, we've got a power problem here we're working now, and I guess they want to get the loads down and take a look at it.
CC Skylab, Houston. We'd like for you to power down the 131, and we're about 30 seconds from LOS. Hawaii is coming up at 47.
SC It's all powered down, Houston.
CC Roger. Thank you. And we'll try to have some words for you at Hawaii here on what's going on.
SC Thank you.
PAO This is Skylab Control; 22:48 Greenwich mean time. Loss of signal from Vanguard. Skylab space station starting revolution number 235. The crew is in the midst of a run of experiment M131, human vestibular function, and they were instructed to discontinue that particular experiment because of - some of the power loads were peaking out in the - peaking high in the workshop because of some problem in the charger - battery charger system. The flight controllers are sorting out what the apparent problem is at this time. And hopefully we'll have some resolution before too long. 57 minutes to next tracking station, which will be Hawaii for the first time this evening. 22:50 Skylab Control.

END OF TAPE

SL-II MC312/1
Time: 6:15 p.m. CDT, 6:23:15 GET
5/30/73

PAO - This is Skylab Control; 23:14 Greenwich mean time. Skylab space station 33 minutes out of Hawaii, presently over the Indian Ocean just south of the tip of the Indian Subcontinent. To summarize briefly the electrical power situation as it's understood at this time in the Control Center, it seems that during the Z-local vertical attitude after the earth resources pass the charger battery regulator modules or CBRM's on the ATM electrical power system went to auto disconnect or at least about five of them did at a higher battery drain or power level than was expected. Coming back into daylight with the regulators and several batteries off line, the solar panels began feeding power into the CBRM's which in turn sensed a high voltage and disconnected. Electrical systems engineers are considering setting higher limits for the auto disconnect; how they will manage that remains unclear at this time. And we'll take - it will take an uncertain length of time to get all of the batteries and CBRM's back on the line and the system back to normal. But there is no great concern at this time and with the sleep period coming up it is expected that the electrical power system will be back to normal within a few hours. And right now we're 31 minutes from acquisition with Hawaii. At 23:16 Greenwich mean time, Skylab Control.

END OF TAPE

SL-II MCC13/1
Time: 18:24 p.m. CDT, 6:23:24 GET
5/30/73

PAO Skylab Control at 23 hours 24 minutes and 38 seconds Greenwich mean time. At the present time Neil Hutchinson has indicated to flight controllers here that this team of flight controllers will stay on beyond the normal 6 o'clock change of shift and they would expect to stay on for several more hours, possibly 9 o'clock or later to make sure that this problem with the CBRM's, the battery regulator modules, can be solved and that indicates that there will be no change of shift briefing any earlier probably than 9 o'clock and it could be later than that. This is Skylab Control at 25 minutes and 9 seconds after the hour.

END OF TAPE

SL-II MCC14/1
Time: 18:46 p.m. CDT, 6:23:46 GET
5/30/73

SC Hey there, Richard, it's nice to hear your voice again, babe.

CC Hello there. Ya'll doing okay?

SC I don't know, you tell us.

CC Okay. I'll tell you what we'd like. If somebody is not all ready at the ATM panel we'd like him to start proceeding there and I have a few words here that I think we can explain generally what we understand to be our power problems now and we do have a couple of things on one - a little bit of configuration we'd like to ask you to do after we look at the data this pass.

SC Okay, Dick, Paul's on his way up there now. We're eating dinner but he's on his way up.

CC Okay, well then why don't ya'll just lis en up then and if the other guy is here it'll keep me honest. I'll try to explain what we think has been a problem. In today's flight plan -

SC I'm here Dick. You want me to do anything while I'm here.

CC Stand by.

CC PLT, Houston. What we'd like you to try on regulator number 3 is to cycle it ON and then OFF about 5 times and if you'd get it to the ON position of the ON configurations, stop there. We want it ON if possible. Okay, and I'm going to start into this and tell you a little bit about what we think the problem is - d we'll get back to you, Paul. When we planned today's flight plan we expected to get down to a state of charge minimum of about 45 percent when we did the EREP maneuver, and sure enough we predicted it fairly accurately and we did get down to about 45 percent. However it appears that we have some sort of an anomaly in the CBRM's in that we have an automatic low voltage tripoff circuit - that is designed and we expect it to trip off at about 20 percent. Actually what happened in the anomaly apparently is that some of the CBRM's at least 4 of them actually tripped off at about 45 percent, so that although we did follow a fairly nominal power profile we tripped several CBRM's off the line and it turns out that before your guys mission while we were unmanned for a few days, now using some hindsight it appears that one of our problems during that period possibly was tied to the same thing and our Marshall people and here and also here in Houston are taking a look at that. I don't think I'm going to try to go through the entire sequence of events but essentially what happened later was is that after your ZLV pass in daylight - we went into darkness after that pass - we hit - during that dark pass we hit the 45 percent and four bats tripped off the line which left

only 12 bats carrying the load during that night pass and then at sunrise we then - when those four CBRM's initially saw sunlight they got enough of a voltage spike to trip the four regulators off. So essentially the situation sort of - kinda went from bad to worse and we have ended up with a situation where we have a low state of charge and as of right now for the rest of the evening we are going to continue for the moment anyway planning to do the rest of the flight plan. The only big item that we're talking about that we may not be able to do is the PLT's ATM intended the pass after supper and I think I'll go over to you now if you have any specific questions about this maybe I can get a straight answer for you. Over.

SC To start with - specific answer on the procedure that you asked Paul to do. Our light status indicated that REG 3 was already on the line. Got a light but the meters don't. Now each time I put the switch to OFF the appropriate lights on the panel came on - indicating it was off but it still showed that of course the meter showed it was off the line. I put it back to ON and the light would go out but the meters would indicate that it wasn't on the line.

CC Would you please hit the CBRM all on switch.

SC I'm kind of glad that we got that, I think.

SC Okay, REG 3 now shows here announcement of 22-1/2 volts - it was pegged low before. It shows 5 amps up.

CC Paul, we show on TM that REG 3 is not cutputting.

SC Well, I just told you what we show, Dick. Before we had CBRN ALL ON our onboard meters showed both pegged low, current zero. When we hit ALL ON it jumped up to volt 22-1/2, current +5.

CC Roger, Copy.

END OF TAPE

SC — ...20 volts 22-1/2 current plus 5.
CC — Roger. Copy.
SC — Houston, SPT.
CC — Stand by SPT. We would like on CBRM number 15 to get that REG on. And go ahead SPT.
SC — Stand by one, I'll do it.
CC — Okay. We're about a minute from -
SC — I'm taking PLT's place.
CC — Oh, okay. We're about a minute from LOS. We're going to see you at the Vanguard at 0, correction, at 15 minutes past the hour. We are going to dump the data tape recorder there. And go ahead, we got about 45 more seconds.
SC — I was just going to say that I went around the horn on all the CBRMs and 15, which is off the line, also showed 22-1/2 volts rather than pegged low.
CC — Roger Copy.
CC — Skylab, Houston, as we go over the hill here looks like the electrical power is at least stable now. The batteries are coming up so we'll see you at Vanguard.
SC — Okay. I don't think I got reg 15 on but we'll see you then.
CC — Okay.
SC — (garble).
PAO — Skylab Control, at 23 hours 54 minutes and 47 seconds. We've loss signal at Hawaii. Our next pass is about 21 minutes and 15 seconds from now as we reach the Vanguard station. I'll try and recap briefly what has been happening with the power system. You might be interested in knowing that this happened during the unmanned mode; a very simular event; we ran the batteries down below the 50 percent level of charge and there were a number of anomalies at that time. And a little shortly after that we had some trouble with battery number 17. Since then that's come back on line and is operating properly. The problem then was solved essentially by powering the batteries up and not using the electrical system. And during the pass - last pass, the problem begin during the EREP pass when we went to what's called Z-local vertical. That is to say the spacecraft is oriented toward the Earth and the ATM panels or solar panels are not aimed toward the Sun directly, and as a result battery charge is lost. That's a normal procedure for the earth resources passes. There is a loss of the battery charge because we cannot point both the ATM and the earth resources in the proper direction at the same time. At the end of that Z-local vertical EREP pass which went into darkness over South America, we had darkness and as we went back to ATM the solar array

SL-II MCC17/2
TIME: 18:33 CDT, 6:23:53 GMT
5/30/73

pointed toward the Sun which is called the solar inertial mode. When we went back to the ATM pointing toward the Sun we were already in darkness before we got it pointed. So that meant we had no battery charged during a half hour of darkness following that. No problem was noticed then until we had our next pass which shouldn't take place for a considerble length of time until after we come back into daylight or the Pacific Ocean. And the actual - the first time we had telemetry data after that was at Goldstone and the indication is that when we arrived at Sunrise the voltage from those cold solar panels was high enough so that - first of all I should explain it, four of those batteries were failing, or were not properly operating. They shut off when we went down to 45 percent of battery charge. That's a higher level than we would normally expect. Normally those should not shut down until we reach a 20 percent state of charge. For some reason this did happen. Four of those - at least four of those went off at 45 percent and this was out of range of tracking stations. Then those four batteries being number 6, 7, 8, and 16, four out of the 18 ATM solar array batteries. An additional battery 15 has been off for - since before the launch of Skylab II. Also during this period of time for an unknown reason regulator number 3 of poor battery number 3 also kicked off. So during the remainder of the night 12 or 13 batteries were left to carry the full load during that nighttime pass before we reached daylight and came back to Goldstone after the EREP passes. At that time those 12 or 13 batteries were carring a load. Then when we came back after sunrise the voltage from the cold solar panels, having been in the dark for a long period of time, was high enough to trip off the regulators for batteries 6, 7, 8, and 16. And thus those batterise were not charged up in that daylight pass until we reached Goldstone. At the time we reached Goldstone we commanded regulators 3, which had failed separately, 6, 7, 8, and 16 to - to the ON position. They came on successfully, but then there was concern that going into the nighttime again we might have problems with the batteries running down if those batteries were on line. If they ran down below 45 percent, we were afraid they would again fail and we would have the problem over again. So those regulators were then again commanded OFF, protecting them from discharge. Then at that time we had no luck with battery regulator number 3. It came on for a short period of time but apparently went off again. During this last pass those batteries have been allowed to charge up. The spacecraft has been powered down using as little electrical power as possible right now. And this some impact, for example, on

the M131 human vestibular function experiment. They had to shut down that because of power requirements. So the present time they're charging up. They have about 16 minutes of daylight. About 17 minutes before we reach the Vanguard station over in a darkness pass. And during this period of time we hope those batteries will be charging up. They did command battery regulator number 3 ON again during this pass over the Hawaiian tracking station. That command was not successful. They repeated - feeling that - the astronauts had indicated that the light switched on, indicated that it was commanded on successfully. The regulator is working but they were getting no voltage regulation. And so it indicated that - the meter that they have indicated it was not working. So after following that the astronaut again commanded the entire system off with a separate switch which commands all - all CBRM all charger battery regulator modules to ON. And he said he got an indication of some voltage. But the voltage that he got an indication of 22 volts is above the same level that he was getting on battery number 15. Battery regulator number 15 which has failed, has been failed for a good deal of time. So coming up at Vanguard we should expect some results. We have seen some indication that those batteries are charging properly now and the system is working. But again we're at rather low voltages and low charge. And it'll take some time to build that power back up. For that reason during, first of all, it's necessary during the most recent daylight pass, the daylight pass preceeding this present one about an hour ago, not to run the ATM in the unattended mode. There was no unattended pass during the last daylight pass of the ATM equipment; the solar telescope equipment. The next opportunity for an attended pass is at 50 minutes after the hour which is almost exactly 50 minutes from now. To do that they must command the rate gyros on. Those things must be commanded about 30 minutes in advance. Almost certainly will be commanded at Vanguard which is the next pass 15 minutes from now. If they are going to run an attended mode of the ATM experiment then they must command those on at Vanguard. That decision has not yet been made because of the power requirements they don't know if they'll have enough power to operate ATM for this next pass. So the present procedure is to recharge those batteries above the - well above the 50 percent level so there is no danger of them falling down to that level again. The only time that becomes a problem is when we go in extended periods of pass, when we are not pointed toward the Sun with our solar panel. And that, of course does take place in the EREP passes. This will undoubtly bring about

SL-II MCC15/4
Time: 18:53 CDT, 6:23:53 GMT
5/30/73

some new decisions on the EREP pass schedule for tomorrow for track 34. No knowledge yet of what kind of impact it might have on planning but it dosen't indicate that there is any sort of danger. As I mentioned earlier this is a problem the had been encountered during the unmanned period and was successfully delt with then. So at the present time we have one regulator not operating properly and several batteries charged below their desired load. But all batteries are now charging and except the battery number 15 only one of the 18 which had failed earlier. This is Skylab Control at 2 minutes and 2 seconds after the hour.

END OF TAPE

PAO Skylab Control at 12 minutes and 32 seconds after zero hour Greenwich mean time. Present time we're a little over 3 minutes from acquisition of signal on our clock here in Mission Control. At the present time there has also been some discussion of what changes may be made in EREP pass planning, taping those requirements to prevent reoccurrence of this problem of discharging the batteries below their 45 percent charge level. Most likely that consideration will be to reduce the amount of time allowed for maneuvering to the EREP pass position, the Z-local-vertical position, and also possibly limiting those daylight passes along a period shortly before noon about 48 degrees before noon and 20 degrees after, or vise versa. That is to allow the EREP passes to take place only in the broadest part of the daylight so that there would be time after that to allow recharging - also time before it to allow charging. This would reduce the amount of power consumption on EREP, although it'd probably have only a very small effect on the passes, which now run from about 30 degrees Sun angle to 20 degrees Sun angle. We'll stay live for acquisition of signal at Vanguard, at which time we should learn something more about the changes in that power system and find out whether regulator number 3 has come back on line. This is Skylab Control staying live at 13 minutes and 52 seconds after the hour.

CC Skylab, Houston. We're AOS at Vanguard for the next 9 minutes, and I've got a couple of notes I'd like to get to you before I get the evening status report.

SC Okay. Go ahead.

CC Okay, Pete, for the rest of the flight plan this evening, we are going - because of the importance of the, excuse me, because of the importance of the ATM operation this evening, we are going to support Paul's ATM synoptic operation that is scheduled on his flight plan this evening. There are a couple of things we'd like to remind him about that pass. One is, since we've had the fine Sun sensor off, he'll have to zero the non Sun-sensor wedges. And secondly, because we're still analyzing the problems with the S055 high voltage, we would like him to leave the S055 high voltage off during that pass tonight.

SC Okay.

CC And one other note for Paul. We'd like to delete out of his flight plan the S009 setup that he has in his details pad this evening. And a note for you in general - it looks like this - stand by. And be advised we are commanding the EPC back ON now, in order for it to get squared away for the later ATM operation. One note for you, Pete. On the flight plan this evening that we were to send up

tomorrow, essentially, the situation we find ourself in now is that the electrical power situation has thrown us into a little bit of a flight - reflight planning - stand by 1. We are also - be advised we are about to turn the PRIMARY COOLANT LOOP back ON, and you can expect to get a C&W from the pump DELTA-P there. And to get back to flight plan, we probably will not be able to - -

SC GARBLE.

CC Go ahead.

SC You mean secondary - or did you turn off the primary also?

CC CDR, Houston. We reversed ourselves and failed to get the word up to you. We turned the PRIMARY COOLANT LOOP OFF vice the secondary, as we informed you. We're now turning the PRIMARY COOLANT LOOP back ON.

SC Okay.

CC Okay. Okay. Back to the flight plan - we probably will not get a message up to you tonight, Pete, describing the flight plan; however, basically what we're going to do is we are going to delete the previously planned EREP pass tomorrow. We're looking at several power options, but basically we're going to raise our limits on the state-of-charge red line. We're looking at some limitations on EREP data take of angles around solar noon, and all that's being evaluated. So we will not do EREP tomorrow, and before we say good night this evening, we definitely will have a flight plan in front of me that I can at least describe to you so that you can have an idea of what's in store for you tomorrow. And that's all I have. I'll turn it over to you.

SC Okay, the - let me give you the food - the CDR was a good guy again and ate everything. The - wait 1 -

CC Okay.

SC Okay, the SPT didn't drink item 62, coffee, with breakfast - -

END OF TAPE

SL-II MC-317/1
Time: 19:20 CDT, 7:00:20 GET
5/30/73

SC Okay, the SPT didn't drink item 62 coffee with breakfast, nor did he drink item 62 coffee with his snack. He took all his pills that he was supposed to that was on the pad today and so did the CDR, for that matter. And that's about it for the SPT.

CC Okay. Go ahead.

SC The PLT ate everything except one coffee, item 62 of the snack. He had seven optional salts, and he took all the pills he was supposed to take today to keep up on the pad. And, excuse me, I had - the CDR had 8 optional salts tonight.

CC Okay, go ahead.

SC Okay, on the total log day 150, 16 millimeter activity EREP pass 1BH0190 nonapplicable, now under 16 millimeters. EREP said cue 1 was 7294, two was 9494, three 7014, six, excuse me, four was 6402, eight - five was 8165, (laughter) six was 7071.

CC Roger. Go ahead.

SC (Garble) no malfunctions. Also, on our 35 millimeter, we took - (garble) the log on that.

CC Okay.

CC Incidentally, while you're looking for it, Pete, the coolant loops are squared away again. They are both running. We are back in our nominal configuration.

SC Okay. On the 35 millimeter CI26 today, we took 22 (garble) pictures; 6 of those were drogue photographs, and 7 through 22 were some pictures we took of the dirt that's accumulating on our screens because we want to clean them here pretty soon. And the other pictures in that group were of our suit stowage locations for the other crews when we get back and some other configurations of equipment in the MDA.

CC Roger, Pete.

SC Okay, the flight plan deviations today: the CDR missed the (garble) 1 through 4 because he also missed his PT and PH because he was fiddling with the probe. And otherwise I think everybody else got everything done that - (garble) - You cut out that M131; so I assume you know about that. But the red stuff you didn't know about. I think anything else we've mentioned, you know about.

CC Roger. Understand, Pete. Yes, and we're talking about the 131 run this evening, and I'll get with you later on that. We still have about 2 minutes left in the pass. Over.

SC Okay.

CC Is that all you have?

SC Yeah, that's it. You know about anything that's inoperable. That's 019. If I have some time tonight,

I'm going to go mess with that some more. I'm pretty sure that we've got some dirt in both those gear trains. The one of them I don't think makes any difference, but the gear train that is inoperable - if we can locate that without tearing it apart, we're going to do that. And I think I understand the gears, and I won't disassemble anything; so you don't have to get nervous about it down there. But we're just going to smoke it over some more.

CC Roger, Puce we'll do that. Be advised that one of the things on tomorrow's flight plan very probably will be a period of time to schedule - to take a look at S019, and we're working up a suggested procedure, I think, for you this evening. We've got about 1 minute left in this pass. We're going to have the next pass at Hawaii at 01:22, about an hour from now. And that will be a medical conference. And if you guys get through talking up there, we'll reconfigure and possibly have a short pass with me later on in that pass; so I'll see you later.

SC Okay. We don't have very much for the doctor; as a matter of fact, we don't have anything for him. We're in good health, but we'll talk to him. And if you want to get back at us, why don't you try to make it short.

CC Okay, real fine. We'll see you later.

SC Roger.

PAO Skylab Control at zero hours 25 minutes and 55 seconds Greenwich mean time. We've lost signal at Vanguard. There is now an extended period of no communications between the spacecraft and the ground. Our next communications is about 56 minutes and 54 seconds from now at the Hawaiian Tracking Station. That will be dedicated, at least in part, to a private medical conference between the crew and ground. This is the daily medical conference to report the status of the crew's health. The crew indicated during the pass at Vanguard that there would be very little to say, but they would hold it down to the lowest possible time. They have about 10 minutes at Hawaii. It takes a certain amount of time to set up for the private conference and to bring down the lines for that conference, but it's expected that sometime during that Hawaiian pass, we will have open conversation between them and the operational people here. The indication is that all those batteries - all those batteries are charging up properly now with the exception of 15, which has been out of order for at least a week. And also regulator number 3, which is still not giving the kind of reading we would expect. We should get some additional data on that when we arrive at Hawaii. We're presently in the night time - went into the night time at Vanguard, and we have about 23 minutes of darkness now; so

SL-II MCC17/3
Time: 19:20 CDT, 7:00:20 GET
5/30/73

there will be no battery charging until after we come into daylight, sometime before Hawaii. Usually the division is about a half an hour of darkness and about an hour of daylight on each pass. This is Skylab Control at 27 minutes 23 seconds after the hour.

END OF TAPE

SL-II MC-318/1
Time: 20:18 CDT, 7/01:18 GMT
5/30/73

PAO Skylab Control at one hour 18 minutes and 25 seconds Greenwich mean time. At the present time Flight Director, Neil Hutchinson's team is still on duty. They normally would go off at 6 o'clock for a Change-of-shift. Hutchinson's team is responsibile for detailed flight planning for tomorrow and they have stayed on to do some revision to that flight planning. After a very careful planning earlier of the details and electrical power constraints, during this afternoon for tomorrow's scheduled experiments and operations, Flight Director Neil Hutchinson's team is now re-evaluating the detailed flight plan in light of today's electrical power anomalies. During this last pass, spacecraft communicator Richard Truly told the crew that the Earth Resources photography and sensor pass, which had tentatively been scheduled for tomorrow will be cancelled so that new electrical power constraints and operational requirements can be determined. Changes to the EREP runs - Earth Resources Experiment package runs - may include limitations on the length of time for attitude adjustment on the spacecraft and restrictions on the length of Earth Resources data passes to permit some daylight period for recharging. While the Earth Resources experiments do not draw heavily on electrical power, the Earth oriented attitude which essentially ignores the relationship between the Sun and the ATM solar panels that are used to recharge the batteries to select these - Earth Resources passes do reduce the electrical power generated by the solar cells. During the first EREP operation this afternoon, batteries discharged to about 45 percent of their fully charged level. This should have presented no problem since the batteries are designed to operate down to 20 percent state of charge. Immediately following the Earth Resources pass, which is ended on the Earth's surface - is at a Sun angle of 20 degrees - or today that was in the late afternoon in northern Brazil. The space staion is re-oriented to point the solar panels and telescopes directly at the Sun. Before this attitude change, however, could be completed, it takes several minutes, the space station passed into darkness. At the Vanguard tracking staion all the charger battery regulator modules are functioning properly and showed a proper state of charge, that's slightly above 45 percent. That was exactly what was expected - charger battery regulator module number 15 which had failed with a lack of improper connection between the solar array and the charger CBRM - the charger battery regulator module that had failed during the unmanned portion of the mission many days ago. That one stayed in it's (garble) poisition but all of the other 17 batteries that are attached to the ATM solar panels were operating properly. Then the scheduled events after that was that we were - had passed into darkness at the Vanguard and we had

a long darkness pass and 30 minutes of daylight before we received any data from the Hawaii tracking station. And - I'm sorry - at the Goldstone tracking station was our next data pass, that was a little over 30 minutes into the daylight time. We saw that the regulators for CBRM's 3, 6, 7, 8, and 16 had all gone off-line. We tried to command regulator number 3 on, but that failed to work. We did, however command regulators 6, 7, 8, and 16 ON. All of those worked perfectly and the chargers which had also shut down worked perfectly as well. So only one regulator, number 3, had remained OFF. Then at Vanguard at - the Goldstone pass was at 22:15 Greenwich mean time. At 22:44 Greenwich mean time at Vanguard we turned off the primary coolant loop to save power and we also had the regulators for 6, 7, 8, and 16 turned off because we were going into night and were afraid those batteries, since they were in use would go too low on charge and thus not make it through the night and we'd have the same problem over again. At Hawaii acquisition of signal which was after that nighttime pass and into daylight again, the power system looked good and we made it through the night using only 12 batteries. The crew cycled the right switch again for regulator A a number of times, regulator A did not succeed again. I'm sorry regulator 3 did not succeed again. Regulator 3 having been in the fail mode since Goldstone. The crew also hit the CBRM ALL ON switch which regulates all those regulators. All of them were on successfully except for regulator number 3. They did get a slight amperage output - some electrical output from regulator 3, but it was relatively brief and did not appear to have any effect. We should get data now at acquisition of signal, at Hawaii where there's a private medical conference underway. And Vanguard on our last - -

CC - for about 10 minutes. How do you read?

SPT Loud and clear, Richard, how do you read up here?

CC You read loud and clear. Y'll must be awfully healthy this evening.

CDR We are and the CDR and PLT logged 10 laps each around the water rings tonight. (Garble) we're getting pretty sporty. Pretty soon we can run and do a front flip.

CC Roger. (Garble) I'd like you to advise you that there's been a quite of people incredible at that feat - and particularly all the guys over in your office. And one of the things that we were wondering is if you've learn to ride on the portable fan yet?

CDR No, not yet, we've got to master the front back flip while we're running on the water ring lockers. Actually if you stop and think about it for a second, I'll

tell you how we get (garble). You put your feet in a groove and push off very slowly and tangentially along the water fringe and then just start pumping your toes in each one of the locker grooves and then slowly stand up. And the tendency is to go too fast and you crash face first, but if you move slow, sure enough after awhile you get your body straight up so that you're absolutely running right along the radius (garble) and you can run around there all day long.

CC Man, that sounds like fun. Hey, if you guys will give me about 30 more seconds to put together some words to tell you about tomorrow's flight plan and if you'll grab a blank piece of paper I think in real general terms I think I can tell you what to expect, so I'll be getting back to you just here in a second.

CDR Go ahead.

CC And also for the PLT. At the ATM, if you have a chance, we're configured at Hawaii for XUV monitor TV down-link if you could throw the switch for us.

PLT Okay.

CC Thank you.

PLT Try to get started, I just started on this job (garble) let me get started, then I'll do it.

CC Okay, fine.

CDR And while you're waiting Dick, I just finished the fuel cell purge, both H2 and O2 on the command module and I'm (garble) turn off the purge line meter.

CC Okay, thank you.

CC Okay, Pete, if you're ready to jot this down I can tell you very briefly what we're going to do.

CDR Go ahead.

CC Okay. In the morning of course we'll have a normal post-sleep activities and then after breakfast for the CDR, you'll get the first ATM pass and then there's a period of time in there to do a couple of little housekeeping things and also to do EREP tape and this is - and then you'll have your lunchtime. And I think I'll go - -

END OF TAPE

CC - - and also to do EREP tape and this is and then you'll have your lunch time and I think I'll go ahead and tell you what the other two guys will be doing to get us all up to lunch. For the SPT, he will be doing an M172 calibration right after breakfast and also during the time that he's doing that, we'll have a message for Paul to be doing S019 malfunction chasing. Then after those two guys are through with the calibration and the malfunction procedures the two of them will be doing an M131-2. And then they'll have lunch. Over.

CDR I've got all of it - everybody and everybody else said copy. Go ahead.

CC Okay. Then after lunch, Pete, you'll have one ATM pass and then you'll have a break and do some other - some M487 stuff and then another ATM pass or two I think it is and then assuming - making the assumption that we get S019 fixed - we will have an S019 ops period and then it will be - that's the end of the day - you'll be having dinner then. For the SPT, after lunch, he'll have an ATM pass after lunch for the one where you're going to be doing a couple of other things then following that ATM pass, we're going to repeat the M131-1 that we missed this afternoon. So again the SPT and the PL - and the PLT will do an M131-1 and the SPT will be the subject. Following that run, those two guys will do an M092/171-1 series with the PLT the subject and Joe as the observer. And that brings everybody up to dinnertime. Over.

CDR I got it all.

CC Okay. Then right after dinner, Pete, we've got a - scheduled in a few minutes for you guys to conduct a fire and rapid DELTA-P drill and then you and Joe I think - let's see - you and Joe have the rest of the evening off and Paul gets the ATM pass after supper. Over.

CDR Okay. I'll tell you those first couple of (garble) fire alarms we had up here, especially that one in the - in the heat exchanger. We got it drilled out pretty good on that, but I go along with that. We can think some other things out and I think that's a good idea. And do you want me to read this back? I've got it all.

CC No, sir. If you're satisfied, I am. I'm sorry we couldn't have it in your hand this evening, but we will - be advised, we will have the Flight Plans onboard when you wake up in the morning and also the detailed pads to support them. So I think we can let it go at that.

SL-II MC319/2
Time: 2026 CDT, 7:01:26 GMT
5-30-73

CDR Okay. That's no problem. How serious does it look on the EREP? Is it just a matter of juggling or are you really going to have to go set your heads to work out the power or does it look like we just don't have enough?

CC I think we'll - stand by 1. Let me give you a straight answer.

CC Pete, I guess we're still scratching our heads about it but the things we're thinking about are just a little - slightly more restrictive time than we'll spend in ZLV and we're possibly considering restricting - coming into sunrise and going into sunset in solar inertial. However, I'd put that right now as speculation. We just really haven't thought it out. We will be doing more EREP and we'll plan it so we can get the most out of it.

CDR Okay. I understand. That's fine. It give us a little more impedence whether we do it or somebody else does it to get that other SAS panel out. which is a shame that thing is sitting there and I think once equipped with the right tools it's just a matter of applying a few pounds on that strap and that baby would be out and running.

CC Roger. Stand by just one second, please.

CC CDR, Houston. We still have about 2 minutes left in the pass. For your information and quite frankly I'm not sure what you've been briefed about on air-to-ground, but we are very actively working several alternatives that are in peoples minds about solving the SAS problem on this mission. We are - when Rusty left this evening he's going over to Marshall to work on a tiger team with some good thoughts along that line. And we'll get back to you and let you know the progress. But we're sure still working on that one. We haven't given up yet.

CDR How good was the TV that you got of that thing? Was it fairly good resolution? Do you really understand what it is that's holding it? Like we see it?

CC Well, to tell you Pete, we did get some individual frames that looked pretty clear to us, but we have a plan that we're working on to stick the television out of the minus-Z SAL on the pole that we - on a pole so that we can point it back and look at that SAS wing and that way we think if - and we are working on that, we're hoping to do that the day after tomorrow at the latest. And that ought to give us just super good resolution at that SAS wing, so I think then we'll have some real good information. Before I get caught short here I'm about 40 seconds from LOS. And

the last pass of the day is the next one and that's at Vanguard at 01:54. Go ahead.

CDR Okay. See you there. That sounds great. I didn't think of that but it makes a lot of sense. I'm going to have to think about which side the straps are on that hold it, but I presume it's on the right side that you'd be looking at, but I'll have to think about that.

PAO Skylab Control at 1 hour 33 minutes and 8 seconds. As you noticed the Hawaiian pass was not used for a medical conference as it had been scheduled. Crew indicated earlier in public that their health was fine and they didn't feel that there was any need for an extended discussion and so most of that pass was - that pass was entirely devoted to discussion of the flight planning for tomorrow. One of the questions that was raised by the astronauts was whether or not they might do something to drploy that solar array panel which is attached to the side of the orbital workshop and is still held back in by a piece of strapping. Capcom Richard Truly indicated that Rusty Schweickart, an astronaut, is presently at Marshall Space Flight Center in Huntsville, Alabama, working in the neutral buoyancy simulator. He is working on that SAS deploy problem - that solar array deploy problem and so there is some work going on. A number of people testing ideas here on Earth to - for possibly deploying that. They also mentioned that they may use that minus-Z solar airlock to take a look at - a better look at that and get some additional photography of it. We may get some more details on that a little later. Let me again review for you the events and the times in the charger battery regulator module problem. Began at 22:15 Greenwich mean time, our first knowledge of it at Goldstone, that's at 5:15 central daylight time, when we discovered that 5 of the regulators had gone off line, five of the 17 that are still in operation. And that 4 of the charger and battery modules had gone - had automatically disconnected. Those are numbers 6, 7, 8, and 16. Regulator 3 was commanded on with no success. The other four regulators and chargers were commanded on successfully at Goldstone at 5:15 and they're following it - 5:15 central daylight time. Our next pass is Vanguard at 22:44 Greenwich mean time or 5:44 central daylight time. We turned off the primary coolant loop in order to save some power and we also turned off the regulators that had been turned on successfully at Goldstone because we were

afraid those batteries would discharge once more during the nighttime pass which started at Vanguard. And then when we came up again on Hawaii at 23:47 Greenwich mean time, or approximately at 6:47 central daylight time, we found that we had made it through the night successfully using the 12 batteries with the others shut down, and at that time we found that everything looked the way it should. the power system was working properly. We once again tried the regulator switch for number 3, had no success again. A number of times we switched that on. We turned on all of the regulators, including those four that had been shut down during the overnight period and they worked properly. Number 3, however, although, it gave us small indication that power did not come on properly and at that time we also turned the regulator 15 on again. But regulator 15 which is to the battery that had failed before the manned mission had started, did not operate, although the battery heater came on properly. At Vanguard AOS at 0 hour Greenwich mean time - 0 and 19 minutes, or just a short time ago - approximately and hour and 15 minutes ago. the power system was stable and the primary coolant loop was turned back on. Now both coolant loops are operating and operating properly. Batteries are charging up as they should and are above the 45 percent level where we had some difficulty earlier. We don't expect any additional problem with this. We still do not have an operating battery regulator for number - battery regulator number 3. As long as that is out that will have cost us approximately 150 to 200 watts of power. You can get additional details on this at the press conference which is now tentatively scheduled for 9:30 p.m. central daylight time with Neil Hutchinson. He will bring along his EGIL, his electrical general instrumentation, and Life Support Systems engineer, Mr. McLendon. And that will be at approximately 9:30 central daylight time. This is Skylab Control at 37 minutes 18 seconds after the hour.

END OF TAPE

PAO Skylab Control, at 1 hour 53 minutes and 9 seconds Greenwich mean time. At the present time we're on revolution number 236, just reaching the Vanguard tracking station and we're about 30 seconds from acquisition of signal at Vanguard. We have had no additional problems since the last pass. We're expecting a press conference in about 30 minutes at building 1 Johnson Space Center. We'll stay tuned now for acquisition of signal at Vanguard.

CC Skylab, Houston, we're AOS at the Vanguard for the next 8 minutes.

SC Roger, Houston. (garble)

CC That squeal really is bad, Pete. I can barely hear you and be advised I forgot to tell you at the last LOS we are going to be dumping the data tape recorder this pass. Go ahead.

CC Pete, while you're getting that - those volumes squared away, let me pass up one note for the SPT, I'm assuming that he's listening. On the M133 tonight on the sleep - the problem with the electrode moisture on the sleep cap. We think he might have better luck by using a sleep cap this evening from ring locker D412 which has been a little bit cooler. And we'd like him to do that if possible and please to report the pre and post sleep wetness conditions of the electrodes after he does that. And also this evening be advised on the CD2-2 DTO that we have scheduled, it is not necessary to close the - to reconfigure the ventilators in the sleep compartments due to the warm conditions down there. Over, and go ahead.

SC Okay, Jack and we're getting this squared away. Can you read me?

CC I can read you but I still hear the squeal. Why don't you go ahead and try it?

SC Okay, I think we got it now. The down link portion of the evening status report is not on B channel yet because the PLT and the CDR haven't finished their exercise we are - I'm on a bike right now (garble) And PLT is going to exercise also, so that'll be a little late coming down.

CC Roger, understand. And one thing, Pete, have you had a chance yet to look at S019 any?

SC No, I didn't get to it and we'll just wait until we get your instructions tomorrow.

CC Roger that Pete.

SC What - what we been doing Dick is the SPT has been trying to work out better geometry for his protocol on the bike. I think we're all trying to do that. We're juggling around with this thing trying to find the best way to ride it up here and it's not at all appearing that - that

each guy is going to come up with the same basic way of fixing whatever the problem is.

CC Okay. Understand. And stand by one.

CC And Skylab, Houston, we're taking a good look at the ATM configuration since we're gonna be doing unattended OPS all evening and we notice that both H-Alpha doors, our TM indicates that they're open and so the S054 exposure setting is 64-256. So we would like to make sure that we go real carefully down to unattended OPS cue card on the ATM this evening. Also be advised that during the evening we will be putting together a evening questions - a set of questions from today's operation so sometime tomorrow -

END OF TAPE

CC carefully then unattended OPS cue card on the ATM this evening. Also be advised that during the evening we will be putting together an evening set of questions from today's operation so sometime tomorrow if you get a chance you might go through them and put them on the tape recorder. We've still got about 3 minutes left in this pass and I'm standing by.

SC Okay, we'll check the H-Alpha (squeal) these doors and (squeal) 54.

CC Okay, thank you much.

SC That's all ready, (garble). That's my fault.

CC No problem.

CC And Skylab Houston we still have about 1-1/2 minute. I have one quick question about the status of SO19 that if you can remember from this afternoon, Paul, it might help us out this evening. Over.

SC Go ahead.

CC Okay, we think - we suspect that there is a potential that the problem is in the gearing between the tilt knob and the gear that's on the inside of the AMS on the right side - and just inside the tilt knob and it potentially might be some little bits of glue that were put in there just prior to flight. What we were wondering was did you attempt to rotate the gear on the inside of the AMS - on the inside of the tilt knob and if you did was that gear free or - and did it spring back and forth or was it jammed hard tight? Over.

SC Pete and I both attacked that thing. We tried to move the gear train from every place we could reach it and the whole system end to end is frozen up tighter than a drum.

CC Okay, fine. We'll take that input for sure and we'll be getting back - when you wake up we'll have some kind of a message onboard to describe how you ought to do that. We're about 15 seconds from LOS. Your first pass in the morning is going to be about 45 or 50 minutes after you wake up and there will be a statesside pass so ya'll have a good night's sleep and see you tomorrow.

SC Same to you Richard. Good night.

SC Say good night.

CC Say good night Dick.

PAO Skylab Control at 2 hours 2 minutes and 28 seconds Greenwich mean time. We have gone out of our range of the tracking station at Vanguard aboard the ship and we are now in the nighttime part of our pass. During this last daylight pass Pilot Paul Weitz was at the Apollo telescope

SL-II MCC21/2
Time: 20:58 CDT, 7:01:58 GET
5/30/73

mount solar telescope control and display panel. He was operating the ATM in the manned mode as had planned earlier in the flight plan. There was some doubt about whether that would be possible but it was considered - it's one of the synoptic passes which are performed approximately once every 12 hours and that was considered essential and so for that reason they did power up the ATM and use it during that manned mode. He was then told to configure that - the ATM - the solar telescope so that it could be controlled from the ground and that's the present arrangement. We're now out of range of a tracking station for 1 hour and 28 minutes and 32 seconds at which time we will come up again on the Vanguard ship off the coast of South America. So there will be a long period now of loss of signal. There is a press conference still expected to take place approximately 9:30 p.m. central daylight time with Neil Hutchinson and his electrical general instrumentation and life support systems engineer the man who is responsible for handling the battery operation and the power and coolant systems for the spacecraft. This is Skylab Control at 3 minutes and 50 seconds after the hour.

END OF TAPE

SL-2 MO-322/1
Time: 21112 CDT, 7102/12 GMT
5/30/73

PAO ... Skylab Control at 12 - at 2 hours 12 minutes and 12 seconds Greenwich mean time. At the present time we have a note on the daily medical conference. There was, in fact, a private medical conference scheduled at Hawaii, and it did take place. The doctor in charge, Dr. Ross, informs me that that medical conference took place before we got AOS, acquisition of signal, on our clocks here. They actually had acquisition of signal about 2 minutes early on that pass. So there was a very brief medical conference, and here is a report on the medical conference held there. The Skylab crew is in good physical condition and continues to express their jovial personalities, in spite of some current power problems. And it's signed by Dr. Charles Ross for Dr. Hawkins of the medical directorate. No difficulties at all, as the crew explained themselves in open conversation earlier. I think we also might note at this time that M133 is expected to be performed again tonight. That means the crew will be sleeping in the orbital workshop sleep compartments. And Science Pilot, Dr. Joseph Kerwin, will be wearing the M133 helmet, a light weight cap that's replaced every night. This has a number o electrodes in it. The electrodes last night, for some reason, apparently dried out too much, and we were not getting accurate reading after about the first hour and a half of the sleeping period. So tonight they are using a half of a different part of the space station (garble) in another locker where the temperatures were not so high. The electrodes on these are small rubber-capped devices. They clip off a piece of the rubber cap at the end, and there is a fluid inside them, and that's the fluid that seems to have dried out. It was assumed that that would not happen despite the high temperatures in the orbital workshop during the premanned period. But apparently, despite the rubber casing, the electrolytic fluid inside has dried out to some degree, and so we are going to use a different cap. Each of these caps is replacable every night. They're to be worn about 15 times during the first 28-day mission. And we will then have sleep data, if the cap works properly and the electroes are not too dry. We should have sleep data on Dr. Kerwin again tonight, as they sleep in the orbital workshop. We have 1 hour and 17 minutes before we have an acquisition of signal again. That will take place at Vanguard. About 15 minutes expected before the press conference with Flight Director Neil Hutchinson, who is going off, and the new team of flight controllers under Flight Director Charles Lewis has taken over officially. They are now doing some briefing and final discussion. This is Skylab Control, at 14 minutes and 58 seconds after the hour.

END OF TAPE

SL-II MC-323/1
Time: 21:26 CDT, 7:02:26 GET
5/30/73

PAO Skylab Control at 2 hours 26 minutes and 37 seconds Greenwich mean time. At this time Neil Hutchinson, the off-going flight director, has indicated that he may be about 10 minutes late for that press conference. That would be rescheduled now to 9:40 p.m. central daylight time. He is finishing writing status notes on today's activity for Flight Director Charles Lewis, who is taking over Control. This is Skylab Control at 27 minutes after the hour.

END OF TAPE

SL-II MC-316/1
Time: 21.51 CDT, 7:02:51 GMT
5/30/73

PAO Skylab Control at 2 hours 51 minutes and 23 seconds Greenwich mean time. Neil Hutchinson, the offgoing flight director, is still occupied discussing the battery problem, and that problem is largely solved now. And he said that he will be available for the press conference at approximately 10 p.m. central daylight time. He's fairly certain he can get over there by then. I will come up and announce his departure from Mission Control, which takes about 5 minutes to leave Mission Control and to arrive at the other end. He'll be bringing with him his EGIL. This is Skylab Control at 51 minutes and 57 seconds after the hour.

END OF TAPE

SL-II MC-325/1
Time: 22:04 CDT, 7:03:04 GET
5/30/73

PAO Skylab Control at 3 hours 3 minutes and 57 seconds Greenwich mean time. At the present time the spacecraft is at 10 degrees north, 180 degrees west, just to the southwest of the Hawaiian Islands, on revolution number 237, a descending node. Flight Director Neil Hutchinson has left Mission Control, and we believe he is in route now to the press conference at building 1. He should be there momentarily. This is Skylab Control at 4 minutes and 24 seconds after the hour.

END OF TAPE

SL-II MC-326/1
Time: 23:04 CDT, 7:04:07 GMT
5/30/73

PAO Skylab Control at 4 hours 7 minutes and 20 seconds Greenwich mean time. This is the final Skylab Control report for today. The next report should be at sometime after 6:00 a.m. tomorrow morning. The EREP pass - post-pass planning has been completed. We now have some data on weather conditions over the United States and which of those passes are now believed to have been successful. A total of 12 sites and paths have been identified as successfully completed. I will list the number of those sites at the end of this message. At this time no worldwide weather data is available; so we cannot confirm whether or not the investigations taking place in other nations have been successfully completed. Three foreign countries were under surveillance today for short periods of times for indivdual and scientific investigations. There was an investigation in southeast Mexico, one in Columbia for agricultural area, and one in the Amazon basin of Brazil. Those are the three foreign investigation sites that were listed for today's activity. Whether or not the weather was satisfactory, we do not know, and will not know until tomorrow morning. This is the list of sites successfully completed today with - where weather conditions were valid and valuable for data. And the sites are the following: 716 408B 717 408B 718 167 221 196 746 220 208 101 222 198 258 294 746 325 748 598A 116 301 and 132 306. These are task and site numbers for the 12 investigations successfully completed by the EREP overflight today. This is the first EREP pass made at Apollo groundtrack 20 from the coast of Oregon into the northern part of Brazil. This is Skylab Control - the final message for the day and, until tomorrow morning, signing off at 9 hours and 38 seconds - 9 minutes and 38 seconds after the hour.

END OF TAPE